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**Crustal Dynamics Project
Data Analysis--1990**

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and J.W. Ryan**

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CRUSTAL DYNAMICS PROJECT DATA ANALYSIS - 1990

I. INTRODUCTION

This report documents the results obtained by the Goddard Crustal Dynamics Project VLBI Data Analysis Team from the analysis of the Mark III VLBI geodetic data available to the Crustal Dynamics Project (CDP) between 1979 and the end of 1989. These results are available from the Crustal Dynamics Data Information System (CDDIS) in printed form, on computer tape, on 5 1/4" IBM-PC floppy diskettes, or electronically.

A new VLBI delay model contained in the International Earth Rotation Service (IERS) standards (McCarthy, 1989) and described in the CALC 7 Appendix of this report was used for the analysis. The model has a more comprehensive treatment of special and general relativity and is correct at the level of a few picoseconds. The primary effect of the new model is a scale change of $\sim 6 \times 10^{-9}$ effectively lengthening the estimated baselines compared to the previous model. These baseline lengths are then in a geocentric coordinate frame in the general relativistic sense.

Data from fixed stations and mobile sites obtained in observing sessions sponsored by the CDP and the National Geodetic Survey (NGS) are included in this report. The fixed and mobile data are combined in the analysis and presented together. The VLBI group delay observable is primarily used in the analysis. Phase delay observations are only used in two sessions discussed below. Much of the material is presented graphically to give the user greater insight into data quality and geodynamic implications. However, all of the underlying data are available in the machine-readable version of this report. The results presented here are complete in that they include all available relevant VLBI data and supersede results given in previous reports. The values were estimated from five new least-squares adjustments designated GLB656 through GLB660, which are discussed in section IV.

Enhancements to the analysis system make it possible to estimate 50 site velocities directly. (Sufficient data are lacking to estimate velocities at 28 other sites.) These site velocities are tabulated together with reference positions at January 1, 1988 in geocentric Cartesian coordinates. The correlation matrix for these positions and velocities is included so that the site position uncertainties can be extrapolated to other epochs. Additionally, annual site positions and uncertainties for 1979 through 1992 derived from these velocities are tabulated for ease of interpolation. Velocities for these same sites are also tabulated in topocentric coordinates; horizontal rates, azimuths and error ellipsoid parameters are included. The velocities are also given relative to the AMO-2 tectonic plate motion model (Minster and Jordan, 1978).

Each tabular section of this report is introduced by a page which describes the section contents in detail. The information on these introductory pages is collected in the file CONTENTS.90 in the machine-readable version.

II. DATA

A. Instrumentation

The Mark III instrumentation is described in detail by Rogers et al. (1983) and Clark et al. (1985). Its most important characteristic is the ability to sample and record up to 28 discrete frequency channels simultaneously, each up to 4-MHz in bandwidth. The current standard CDP practice is to use 14 frequency channels of 2-MHz bandwidth, 8 applied to X-band (spanning 360 MHz around 8.4 GHz) and 6 to S-band (spanning 85 MHz near 2.3 GHz). Observations on individual sources run from 90 to 800 seconds. Real-time logging of barometric pressure, temperature, relative humidity, and cable length calibrations is an integral part of the Mark

III system. Hydrogen masers serve as both time and frequency standards for all observing sessions. Phase calibration tones are injected into the receiver front end providing reference signals to remove instrumental dispersion.

B. Observing Programs

The CDP makes VLBI measurements in several geographic areas on different scales, as described below. In addition, the NGS coordinates the IRIS program, which observes for 24 hours at regular intervals to monitor Earth rotation. Data from the CDP, IRIS-A, its predecessor POLARIS, IRIS-S, IRIS-P, EUR, and the NGS National Crustal Motion Network (NCMN) are the basis for the current analysis. There exist high-precision Mark III VLBI data which are not included here. These include CDP tests and source surveys, IRIS daily 1-hour UT1 sessions, and observations sponsored by the Deep Space Network, the U.S. Naval Observatory and the Naval Research Laboratory in the areas of astrometry and Earth rotation.

Mobile measurements use the Mark III recording, logging and timing systems described above for all VLBI observations. The antennas are mounted on platforms and the electronics are contained in trailers, both of which can be transported by truck, air, or barge. Mobile observations always employ several fixed-base stations as well as one or more mobile units. (The unit designated MV-1, the original mobile system, was permanently stationed at the Vandenberg Air Force Base in 1983 and used as a base station until being moved to YELLOWKN in the summer of 1990.) In addition to VLBI observations, the vector from a ground geodetic monument to the VLBI reference point of the mobile antenna (eccentricity) is recorded for each session. A single reference geodetic monument is used at each mobile site although the antenna may actually have been placed over different monuments for different site occupations. The eccentricity data are compiled by the NGS for the CDP and are available in the machine-readable version of this report in a file named ECCDAT.

The results presented here utilize the complete mobile data set for the period 1982 through 1989. Earlier single-frequency experiments are unusable because of the inability to calibrate the ionosphere.

The purposes of the various observing programs include:

Advance Technology Development, CDP sessions to test and improve observing strategies using fixed stations in North America.

Alaska, CDP sessions to monitor motions at several Alaskan mobile sites including three sites in seismic gaps near the boundary between the Pacific and North American plates.

Atlantic, U.S. to Europe sessions sponsored by the CDP designed to measure motion between North America and Europe.

EUR, mobile observing sessions carried out by the NGS for various European agencies at BREST, CARNUSTY, GRASSE, HOHENFRG, METSOHVI, and TROMSONO.

IRIS-A and POLARIS, NGS-sponsored sessions designed primarily to monitor Earth rotation. These sessions began in November 1980 with HAYSTACK and HRAS 085 and were scheduled every 7 days. ONSALA60 participated when possible on a monthly basis. HAYSTACK was replaced by WESTFORD in June 1981. In August 1983 operations were increased to five-day intervals. Two new stations, RICHMOND and WETTZELL, were brought on-line in late 1983 and became fully operational in 1984. HRAS 085 was replaced with MOJAVE12 during the summer of 1989. Currently IRIS-A undertakes one 24-hour session every 5 days with MOJAVE12, RICHMOND, WESTFORD, and WETTZELL. Whenever possible, ONSALA60 continues to observe monthly. MEDICINA also participates occasionally.

IRIS-P (Pacific), observing sessions carried out by the Japanese National Astronomical Observatory Earth Rotation Division using KASHIMA, NOBEY 6M and stations in the U.S.

IRIS-S (South Africa), observing sessions carried out by the NGS using HARTRAO and the IRIS-A stations in Europe and the U.S.

MERIT, a series of sessions in 1980 sponsored by the International Association for Geodesy and the International Union for Geodesy and Geophysics to demonstrate the efficacy of modern techniques in monitoring Earth rotation.

NCMN (National Crustal Motion Network), NGS-sponsored sessions to establish a grid of fiducial points across the U.S.

North American Plate Stability, transcontinental sessions sponsored by the CDP designed to measure the internal stability of the North American Plate.

Pacific, CDP sessions designed to measure networks in the Pacific Basin.

Polar, CDP sessions involving stations in Europe, the conterminous U.S., Alaska, and Japan. These sessions link the global VLBI reference frame by using stations which typically do not observe together in the same network.

Research and Development, CDP sessions designed to test innovations in hardware and scheduling techniques.

Survey Ties, mobile sessions involving short baselines for the purpose of establishing local ties between fixed-antenna reference points and ground monuments used in other (such as satellite laser ranging or Global Positioning System) networks.

Western U.S., mobile sessions sponsored by the CDP to measure deformation across the Basin and Range Province and in the boundary zone between the North American and Pacific plates.

C. Phase Delay Observations

In two sessions, \$84JAN07X and \$84JAN14XP, phase delay data were used. The intrinsic precision of the phase delay is considerably better than that of the group delay, but the small size of the phase delay ambiguity limits its geodetic applications to short baselines or special schedules.

III. DATA ANALYSIS METHODS

A. Processing and Data Handling

Most of the CDP data discussed here were correlated by the Haystack Mark III correlator. Some IRIS data were correlated at the Max Planck Institute for Radio Astronomy in Bonn (FRG). Beginning in 1986, most IRIS and some CDP data were processed at the Washington correlator located at the U.S. Naval Observatory. All three correlators have identical designs, but their capabilities depend on the number of tape drives and high-density heads. Some data involving KASHIMA were correlated at Kashima using the Japanese K-3 correlator. For the purposes of this report the output of the four Mark III-compatible correlators can be considered indistinguishable. The output of these correlators is sent to either the analysis center at the Goddard Space Flight Center or a similar center at the NGS in Rockville, MD, where the data are organized by session and frequency band into Mark III databases. Calibration data, solar system ephemerides, a priori parameter values, partial derivatives, and theoretical delays and rates are added to each database prior to actual data analysis. In the analysis process information about editing, ambiguity resolution, solution parametrization, and data-variance-modification is added to the databases. The final database files

are available to investigators from the CDDIS. The Mark III Data Base System utilities required to read the files have been implemented on HP 1000, VAX 11/780, and HP-UX series 800 and 300 computer systems.

B. Models

The models adhere generally to the IERS standards (McCarthy, 1989), except for the permanent tide correction, which is not applied. The *a priori* precession and nutation models used in the data analysis are the J2000.0 and IAU 1980 models, respectively. Daily nutation offsets are estimated to overcome the deficiencies in these models. The *a priori* Earth orientation parameters from BIH Circular D and its successor, IERS Bulletin B, are interpolated to each observation epoch and then modified by the standard IERS model for short-period tidal variations in UT1. Daily wobble and UT1 values are estimated. The tidal potential used to compute the effect of solid Earth tides is calculated using the MIT PEP ephemeris; the values of the Love numbers are 0.60967 for Love h , 0.085 for Love l , and zero for the phase lag. A pole tide model is also used. General relativistic solar deflection and retardation is modeled using 1 (Einstein's value) for γ . An axis offset model is applied for each antenna where the pointing axes do not intersect. The SI value of the speed of light (299,792,458. m/sec) is used. The geophysical and astronomical models are embodied in the program CALC developed by the Goddard VLBI group. See the appendix for some details concerning CALC Version 7.0, which was used for this analysis.

Mark III observations are calibrated for the delay caused by charged particles in the line of sight (ionosphere and extraterrestrial plasma) by generating new observables which are linear combinations of the X-band and S-band observations. To the extent that the delay effects of charged particles have a purely inverse frequency-squared dependence, these new observables are free of charged-particle effects.

The tropospheric delay is divided into two components, the 'hydrostatic' delay (often loosely called 'dry' delay) computed from total pressure and a 'wet' delay due to additional delay caused by water vapor. The hydrostatic delay for each observation is calibrated using the Saastamoinen model for the hydrostatic zenith delay mapped to the elevation of the observation with the CfA 2.2 model (Davis et al., 1985), which requires measurements of local pressure, temperature and humidity. In some cases, valid meteorological measurements were not available and site-dependent static values were substituted. The wet delay is estimated using the method described below in Section D. Water vapor radiometer data for the wet delay were either unavailable or deemed not operational for the data presented here.

Cable calibration, i.e., corrections for variations in the electrical length of the cable carrying timing signals from the maser frequency standard to the receiver, was applied where available and useful.

C. The GLOBL Analysis System

The GLOBL analysis system permits the adjustment of parameters using an arbitrarily large set of data within the memory limits of the Goddard minicomputer facility. GLOBL is a batch extension of the interactive SOLVE system developed by the Goddard VLBI group and is used for all routine large solutions. After a database for one observing session has been fully updated using SOLVE, a "superfile" retaining the necessary information is created. The complete set of superfiles is the potential input to GLOBL. GLOBL processes the selected superfiles sequentially, in each step applying arc parameter elimination and carrying the global parameters forward. See the appendix of Ma et al. (1990) for a more rigorous discussion of this process. "Arc" parameters are those relevant only to a single database, e.g., clock and atmosphere parametrization for a single session, UT1 and polar motion, and daily nutation adjustments. "Global" parameters are those whose estimated values may be affected by more than one observing session, e.g., source positions and site velocities. Coefficients

of the nutation series, the precession constant, and Love numbers of the solid Earth tide are other possible global parameters. Depending on the purpose of the GLOBL solution, station coordinates can be treated as either global or arc parameters.

Since at each step GLOBL handles only the global parameters and arc parameters required for a single database, large solutions including many days of data are possible using computers of modest size. Current program and machine size constraints limit the maximum number of global parameters in one solution to 1024 and the maximum number of arc and global parameters to 1024 per arc. Sequential processing does entail two passes through the data. After the first pass the values of the global parameters are known. The second pass is necessary to recover the arc parameter values and the solution statistics. The two passes give a solution which is identical to a conventional one-step, least-squares estimation of the entire ensemble of estimated parameters without the need for inversion of enormous matrices.

D. Parametrization of the Site Troposphere and Clock

SOLVE has the capability to model short-term variations in the troposphere and clock at each site.

For a given site the effects of uncalibrated (primarily 'wet') tropospheric delay are modeled with a continuous, piecewise-linear function. This function models the evolution of the site's residual tropospheric zenith path delay. The durations of the linear sections are specified for a given solution and are uniform. Durations from 20 minutes to the length of the observing session are possible, but a duration of 60 minutes has been found to provide the degrees of freedom needed to accommodate most real, uncalibrated troposphere variations. The troposphere parameters estimated are the initial zenith path delay offset and the slopes of the linear sections. The initial offset is unconstrained, and the rates are constrained by assigning them an *a priori* value of 0 ps/hr and an uncertainty of 50 ps/hr. The nominal slope constraint is based on a study of actual weather observations (Herring, personal communication; Treuhaft and Lanyi, 1987). For some sessions with unusual weather the rate constraint is relaxed. However, over a wide range of constraints--10 ps/hour to nearly unconstrained slope--the geodetic parameters are virtually insensitive to the size of the troposphere constraint, and the formal errors of the geodetic parameters are sensitive only at the level of a few percent. The critical element of the troposphere estimation method is that it permits short-term variation in the residual troposphere while enforcing continuity in the estimation.

Similarly, the clock estimation algorithm is designed to model short-term, random clock variations while enforcing realistic physical constraints on continuity and rates of change. When all clocks are 'well-behaved' the algorithm is as follows: the clock at one site is designated the reference clock and the differences between that clock and the remote site clocks are modeled. These differences are modeled as the sum of two functions--a second-order polynomial and a continuous, piecewise-linear function with an initial value of zero. The three coefficients of the polynomial correspond to clock epoch offset, clock frequency offset, and clock frequency drift. They are unconstrained in the solution because these parameters can be arbitrarily large for real hydrogen masers. In the piecewise-linear function, rates in each of the linear segments are estimated. Typically, the rate may be adjusted once per hour and the rate of change is constrained to be consistent with the Allan variance of a hydrogen maser at 1 hour. For this report the normal constraint is 5 parts in 10^{14} . In a small number of sessions clocks performed poorly, e.g., experiencing epoch jumps or substandard frequency stability. These sessions require more complicated modeling beyond the scope of the present discussion.

While the introduction of troposphere rates makes a significant (over 50% in some cases) improvement in the fit of individual sessions compared to the previous

parametrization, clock rates produce only a small improvement over the polynomials and diurnal sinusoids used in the past.

E. Earth Orientation Parameters

Different Earth orientation parameter (EOP) series can be applied during analysis by using the EOP partial derivatives to map the observables from the *a priori* values to new values. In addition, uncertainties and correlations associated with the EOP series can be applied as an *a priori* covariance matrix. If an *a priori* EOP covariance is applied and both EOP and site positions are simultaneously adjusted as arc parameters, then the uncertainties associated with the input EOP series will be correctly propagated into the site and baseline components.

F. VLBI Observables

Two VLBI observables were used in past analyses, group delay and phase delay rate. Tests with GLOBL solutions on large data sets show that the delay rates may add noise to the baseline measurements as indicated by the consistency of linear baseline evolution. Consequently, delay rate data were not used for the results given in this report.

IV. DATA ANALYSIS RESULTS

A. Overview

Five GLOBL solutions designated GLB656-GLB660 were run to generate the results tabulated in this report. These solutions were run for the purposes of establishing a VLBI reference frame with an origin coincident with the IERS Terrestrial Reference Frame ITRF89 (McCarthy, 1989), generating tables of Earth orientation parameters and source positions, estimating site velocities, and estimating baseline components and site positions for each observing session. The role of each solution in this process is detailed below.

B. GLOBL solutions

1. GLB656

The purpose of the GLB656 solution was to establish initial terrestrial and celestial reference frames and to estimate EOP values, uncertainties, and correlations from the ensemble of CDP and IRIS/POLARIS fixed-station sessions together with long-baseline mobile sessions. Weak *a priori* uncertainties of 45 milliarcseconds for *x* and *y* pole offsets and 3 ms for UT1 were applied so that all three values could be estimated from single-baseline sessions. The parameters generated in GLB656 do not explicitly appear in the tables of results in this report; rather they were used as *a priori* information for the next solution in the process.

The orientation of the celestial reference frame was defined by the instantaneous values of precession and nutation for the reference day, November 6, 1986, computed from the standard models and by holding the right ascension of the quasar 3C273B fixed at its *a priori* value. All other source coordinates were adjusted as global parameters.

The origin and orientation of the terrestrial reference frame were defined by the following conditions. The coordinate system was that in which the *a priori* motion of the various plates is defined by the AMO-2 no-net-rotation model of global tectonic plate motion (Minster and Jordan, 1978). The origin of the VLBI reference frame was defined by the *a priori* position of WESTFORD at the station reference epoch January 1, 1988. The orientation of the frame was defined by the Earth orientation interpolated from BIH Circular D to the epochs of the observations of the EOP reference day November 6, 1986. Since the positions of

all stations except WESTFORD and the velocities of stations with sufficient data were adjusted, further constraints were required for a well-defined frame. The direction of the vector from WESTFORD in Massachusetts to RICHMOND in Florida was constrained to change according to the AMO-2 model although the position of RICHMOND and the magnitude of the vector were adjusted. The vertical rate at KAUAI was constrained to zero to provide a good vertical definition. Stations whose velocities were not estimated, including WESTFORD, moved according to the *a priori* AMO-2 model. These constraints served to define the reference frame in a robust manner.

2. GLB657

The preliminary positions, velocities, and covariances from GLB656 as well as EOP values, uncertainties, and correlations were used as *a priori* information in this solution. The balance of the mobile observations (with the exceptions noted below) were added to estimate a comprehensive set of site positions for the station reference epoch January 1, 1988 from all the input data. These site positions were compared to their corresponding values in ITRF89 to establish the differences in translation, rotation, and scale between the two frames. Once again, this solution was used to establish *a priori* information for the next solution. Results from GLB657 do not explicitly appear in this report.

3. GLB658

The difference in origin between the VLBI reference frame established in GLB657 and ITRF89 was applied to the site positions generated from GLB657 to move the *a priori* origin of the VLBI reference frame close to the origin of the ITRF89 at the station reference epoch January 1, 1988. The scale differences were not applied as the VLBI technique is directly sensitive to scale. The rotation was also not applied. (However, the VLBI site coordinates and corresponding EOP/nutation values provide a self-consistent transformation between VLBI celestial and terrestrial reference frames.) The observing sessions used in GLB658 were limited to fixed-station sessions and selected long-baseline mobile sessions. Source positions and station positions and velocities were adjusted subject to the same conditions described for GLB656. The GLB658 solution included 370531 group delays in 848 observing sessions, most approximately 1 day long. There were 415 global parameters (station positions, selected station velocities, and source positions) and 158593 arc parameters. The weighted rms fit was 45.6 ps. The source positions in Table 3.1 and the Earth orientation parameters plotted in Figures 9-2 through 9-4 were generated by this solution.

4. GLB659

The positions, velocities and covariances, and EOP generated from GLB658 were used as *a priori* information for GLB659. The sessions added in this solution included the remaining mobile data with some exclusions. Discontinuous motions have been observed at YAKATAGA (Ma et al., 1990) and at some sites in northern California (Clark et al., 1990). Consequently, sessions after 1987 that include YAKATAGA and sessions after the October 1989 Loma Prieta earthquake that include PT REYES, PRESIDIO or FORTORDS were excluded from GLB659. The origin of the GLB659 reference frame is within 1 mm of the origin of ITRF89 at the station reference epoch, January 1, 1988. The GLB659 solution included 102160 group delays in 203 observing sessions, most approximately one day long. There were 635 global parameters (station positions, selected station velocities, and source positions) and 46655 arc parameters. The weighted rms fit was 42.6 ps and the reduced χ^2 was 1.01. While these statistics reflect only the mobile data, the GLB659 solution contains information from all the data, both fixed and mobile. The site positions and velocities in Tables 4.1, 4.2, and 5.1-5.14 of this report were generated in GLB659.

5. GLB660

The purpose of the GLB660 solution was to produce tables of baseline evolution from the ensemble of VLBI data in a manner which made no *a priori* assumptions about tectonic plate motion. The station coordinates were therefore treated as arc parameters, *i.e.*, they were allowed to vary from session to session, subject only to the constraint of being estimated with a global set of source coordinate values and an *a priori* EOP series. The same *a priori* EOP information used in GLB659 was used in GLB660 to estimate orthogonal baseline components and geocentric site positions for each observing session. The GLB660 solution included 487255 group delays in 1073 observing sessions. There were 158 global parameters (source positions) and 220583 arc parameters. The weighted rms fit was 44.0 ps and the reduced χ^2 was 0.97. The baseline component results presented in Tables 6.1-6.4, 7.1-7.271, and Figures 7-2 through 7-153 were generated in GLB660.

C. Results

1. Station coordinates and velocities

Table 4.1 contains the position of each fixed station and mobile site in geocentric Cartesian coordinates in the VLBI reference frame at the station reference epoch, January 1, 1988. The adjusted site velocities are also included with the position/velocity correlation matrix in lower triangular form. Table 4.2 includes velocities and their respective error ellipses in topocentric coordinates for the same sites. For each site in Table 4.2 the corresponding deviation from AMO-2 velocities is included for comparison. These same results are available in machine-readable form along with the full station position and velocity correlation matrix corresponding to Table 4.1. Sites whose velocities were assumed from AMO-2 can be identified in these tables by zero uncertainties in velocity. Site positions and uncertainties at January 1 of each year from 1979 through 1992, also generated from solution GLB659, are found in Tables 5.1 through 5.14 of this report. Site positions and their associated uncertainties were propagated using the reference epoch positions, the velocities (either adjusted or AMO-2), and the relevant covariances. The position uncertainties do not change with time for sites whose velocities were not adjusted, *i.e.*, no provision has been made to propagate the errors of the underlying AMO-2 model.

All mobile results are referred to ground monuments using the eccentricity data obtained during each observing session. The results for MV-1 at Vandenberg are also referred to a ground monument. The fixed antenna results are referred to a position in the antenna structure. For an antenna with intersecting axes, the VLBI reference point is located at the intersection of axes. For an offset axis antenna, the VLBI reference point is located at the point of intersection of the fixed axis with the plane perpendicular to the fixed axis containing the moving axis. The CDP monument number of each mobile ground monument and fixed-station antenna reference point is given.

The histograms of 1 σ formal errors in topocentric positions and velocities are given in Figures 1 and 2, respectively, separated for fixed stations and mobile sites. It can be seen that the east components are the best determined. The east component has smaller errors than the north component due to the geometry of the observing networks. The up components are the most poorly determined because of the strong correlation between the up and atmosphere parameters. The mobile components are generally not as well determined as the fixed components, particularly in the up direction because of the inability of the mobile systems to observe at low elevations. It should be noted that the position formal errors in the histograms are at the station reference epoch, January 1, 1988. For a station with adjusted velocity, the errors are influenced by the strength of the velocity determination and the time interval between the reference epoch and the mean observation epoch for the station. For a station with velocity fixed at the

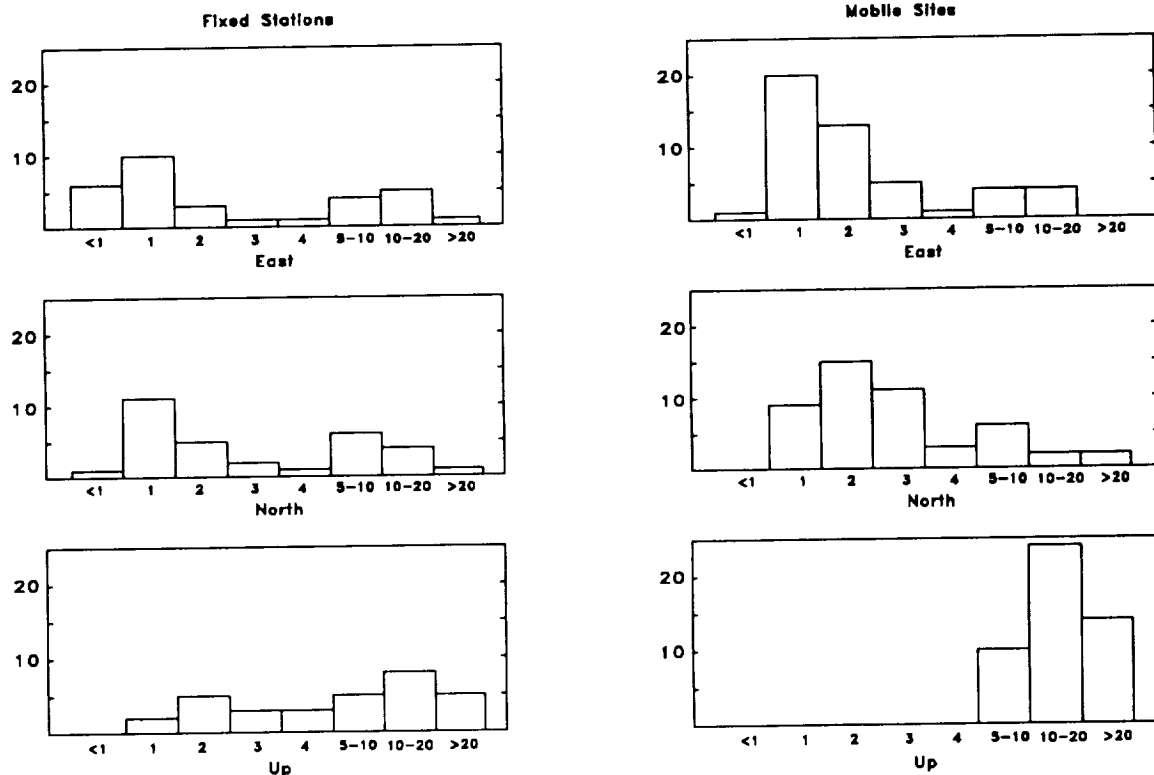


Figure 1. Formal errors (mm) in position at January 1, 1988.

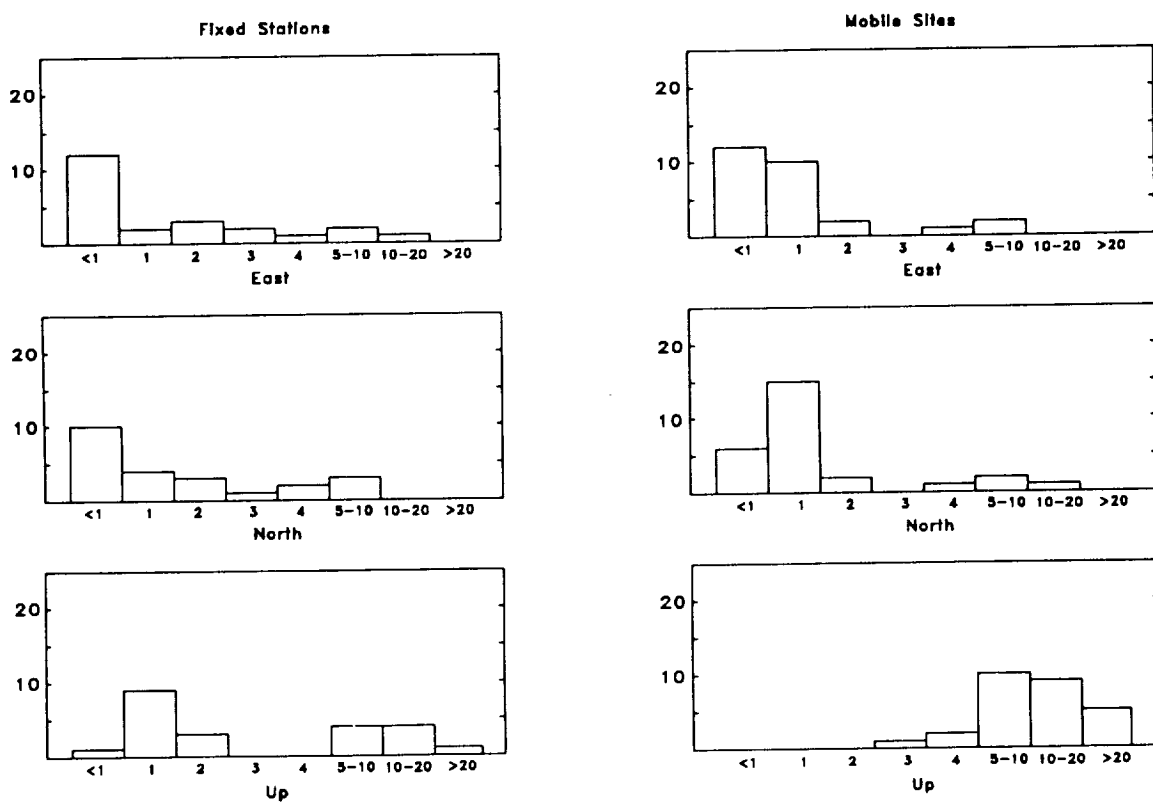


Figure 2. Formal errors in velocity (mm/yr).

a *priori* AMO-2 value, the error is applicable at the mean epoch of observations. Such stations generally have a single occupation that may span several days.

Included in this report are maps of the observed motions of VLBI fixed stations and mobile sites. The horizontal velocity vectors as determined by VLBI in solution GLB659 are shown with their respective 3 σ error ellipses. The AMO-2 plate motion model was used to determine a *priori* velocity vectors for each site. These vectors, shown without error ellipses, are included on the map at each site and station for comparison. The plate that was assumed for each site and station is indicated in Table 1.2.

Figure 3 is a map of the fixed stations used for IRIS-A, IRIS-S, and Atlantic sessions. The close agreement between the a *priori* and adjusted vectors for stations in eastern North America is a consequence of the choice of stations (WESTFORD and RICHMOND) used to establish the VLBI terrestrial reference frame.

Figures 4 through 7 are similar maps of fixed station and selected mobile site velocities in and around the Pacific Basin, in and near Alaska, in the Southwestern U.S., and Southern California respectively.

The machine-readable report also contains the geocentric, Cartesian coordinates of each fixed station and mobile site for each session from solution GLB660 arranged alphabetically and tabulated chronologically. It should be noted that the position for a given epoch is in the coordinate system defined by the (arbitrary) reference station for that observing session and that different sessions having unrelated observing networks will have different reference stations. Correlations between station coordinates are available separately from the CDDIS.

2. Baseline evolution

The evolution of each baseline is presented in three components: length, transverse, and vertical. The baseline length is the chord distance between the reference points at the two ends. The reference point for a fixed station is within the antenna structure. The reference point at a mobile site (and at VNDNBERG) is a ground survey monument near the mobile antenna.

The transverse direction for a given baseline is defined by the cross product of the a *priori* baseline vector from station 1 to station 2 with the a *priori* geocentric vector to station 2. The transverse component is the adjustment from the a *priori* baseline vector in the direction perpendicular to the baseline vector and directed toward the horizon at either site, and is defined such that a clockwise rotation seen from above is positive in sign.

The vertical direction is perpendicular to the length and transverse direction and is radially inward at the center of the baseline. For short baselines the baseline vertical direction is close to the topocentric vertical direction at either site. The vertical component is the adjustment from the a *priori* baseline vector in the baseline vertical direction. A positive change in the vertical component indicates an upward displacement of station 1 with respect to station 2. This component is the most poorly determined from VLBI data. The orthogonal directions are shown schematically in Figure 8 where the unit vector in the transverse direction is directed outward from the page.

The transverse component is strongly dependent on a precise, consistent orientation of the terrestrial reference frame as defined in an EOP series. For the GLB660 solution the EOP series derived from solution GLB658 was applied. The baseline evolution plots for WESTFORD to GILCREEK, HRAS 085, and RICHMOND clearly show transverse rates that are as large as 30 times the formal error. These rates simply reflect the fact that the sites shared the motion of the North American Plate in the a *priori* model of the solution that produced the EOP series. Had the EOP series been generated in solution with no a *priori* plate

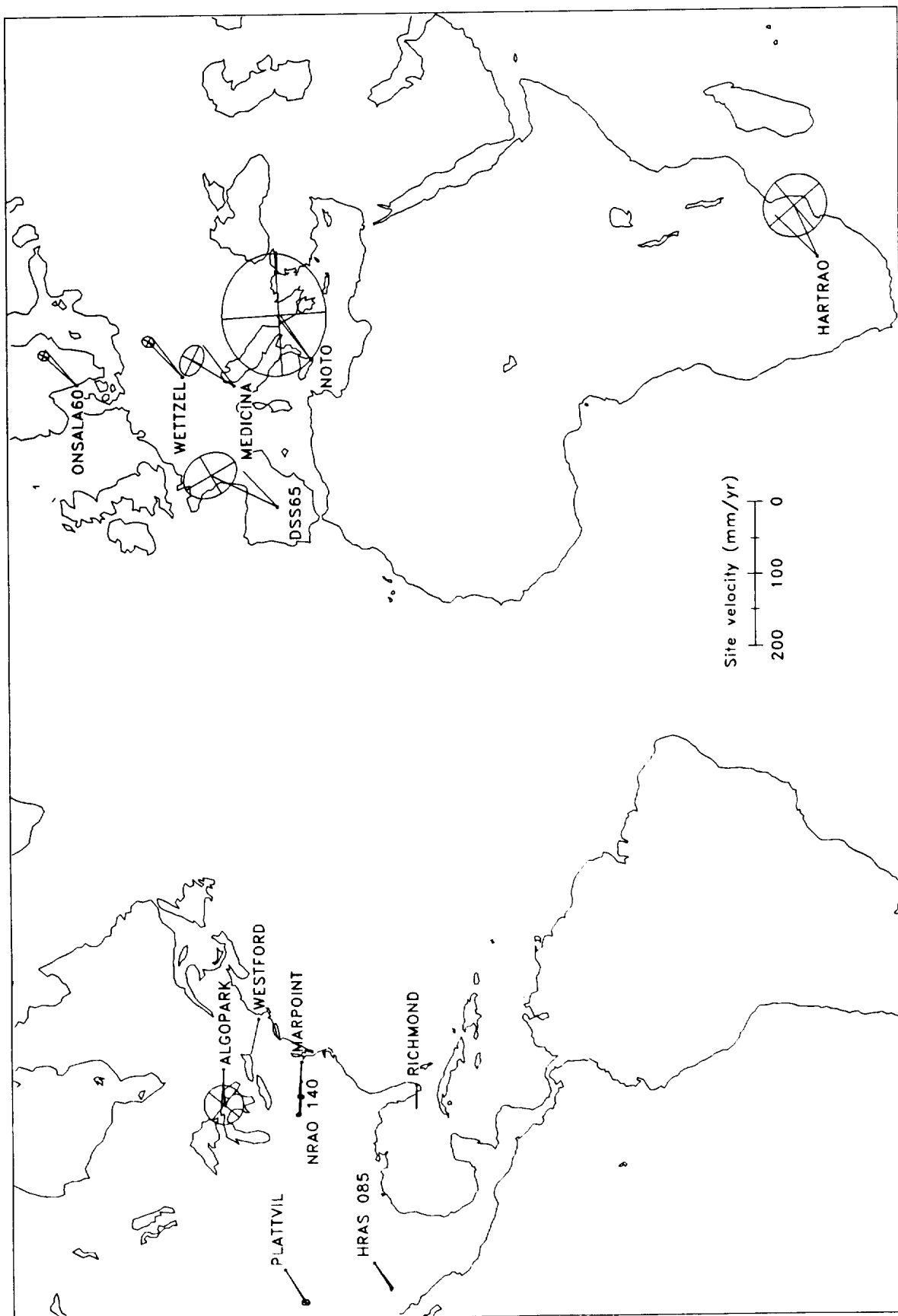


Figure 3. Transatlantic VLBI site velocities (3σ error ellipses) from GLB659.

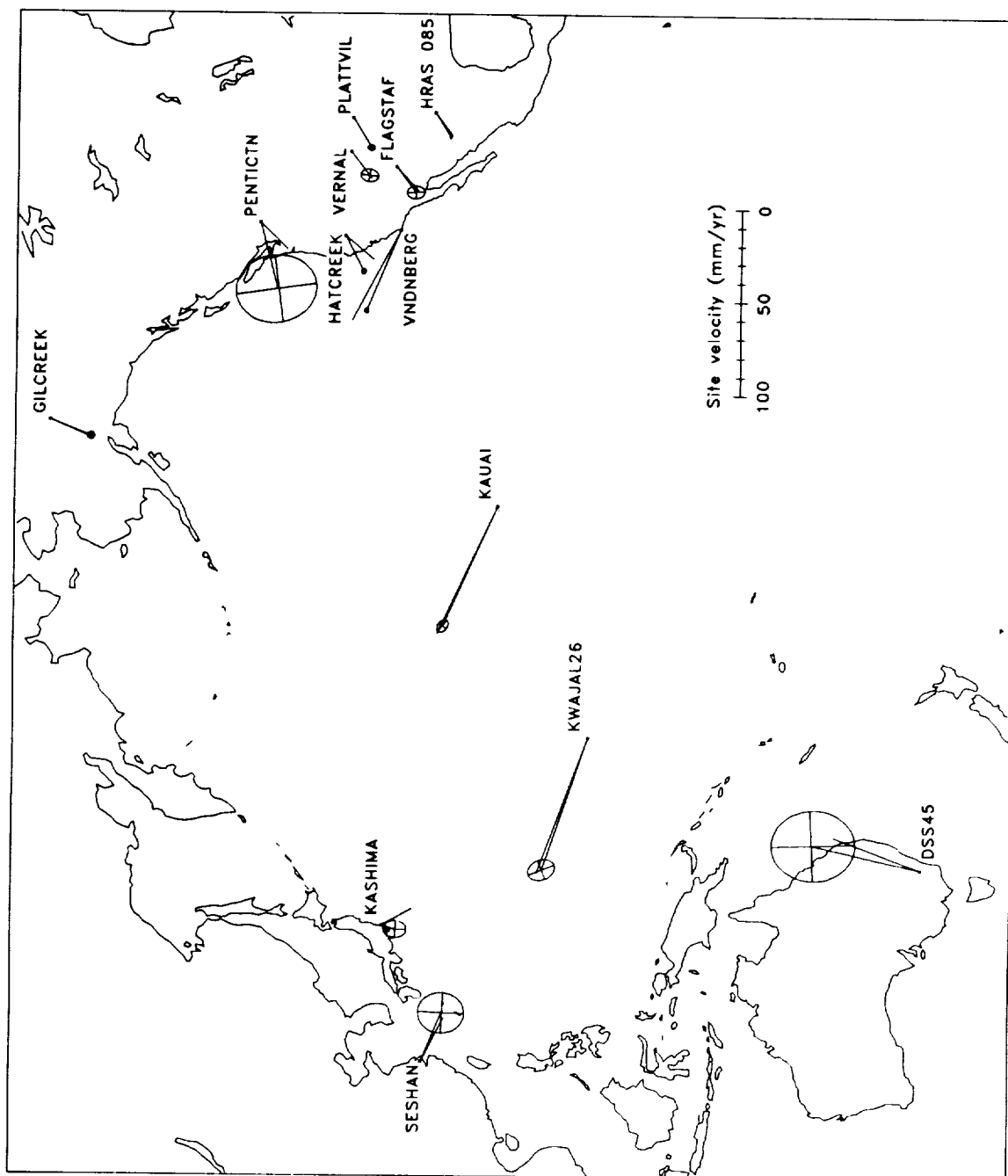


Figure 4. Pacific site velocities (3σ error ellipses) from GLB659.

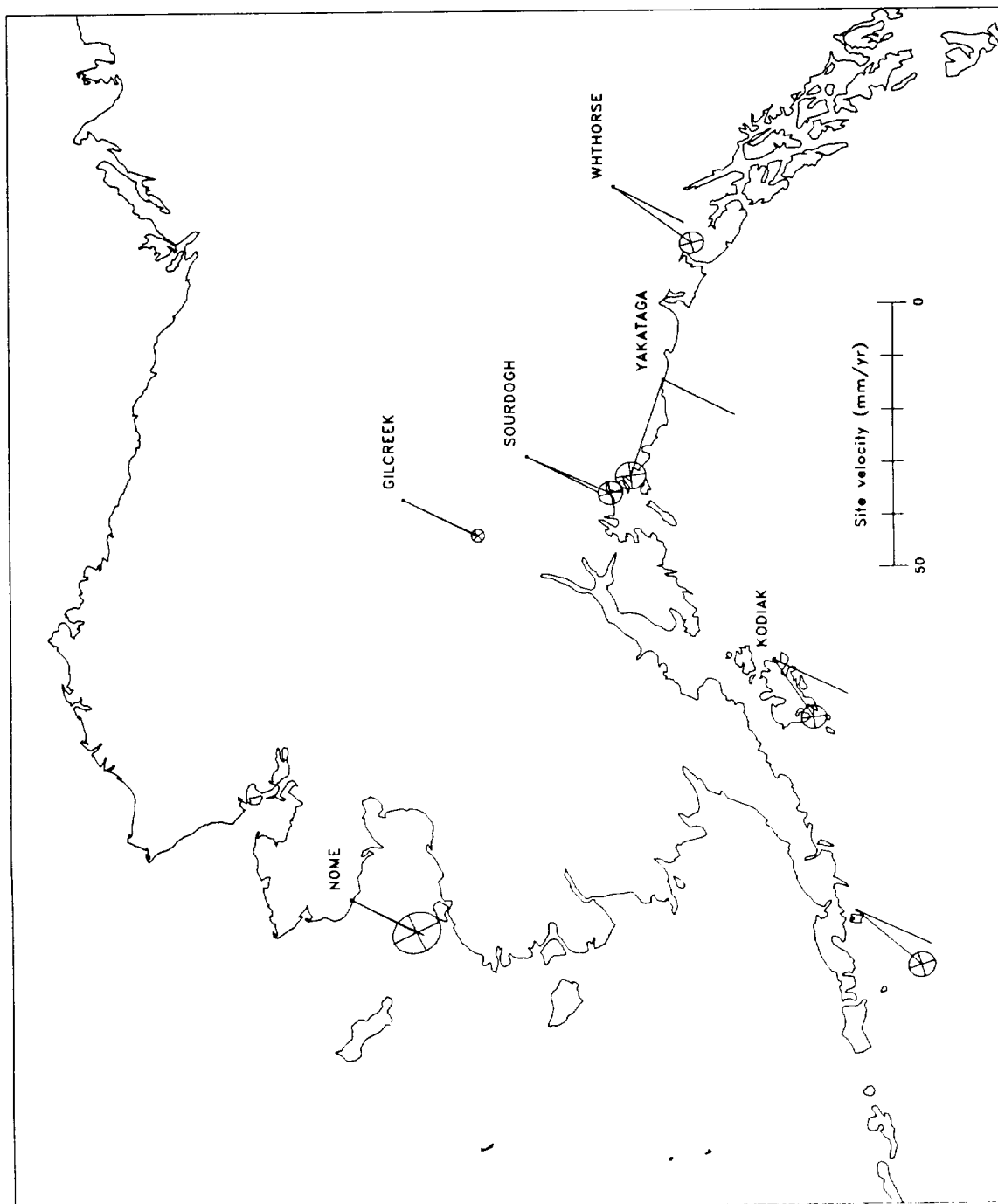


Figure 5. Alaska site velocities (3σ error ellipses) from GLB659.

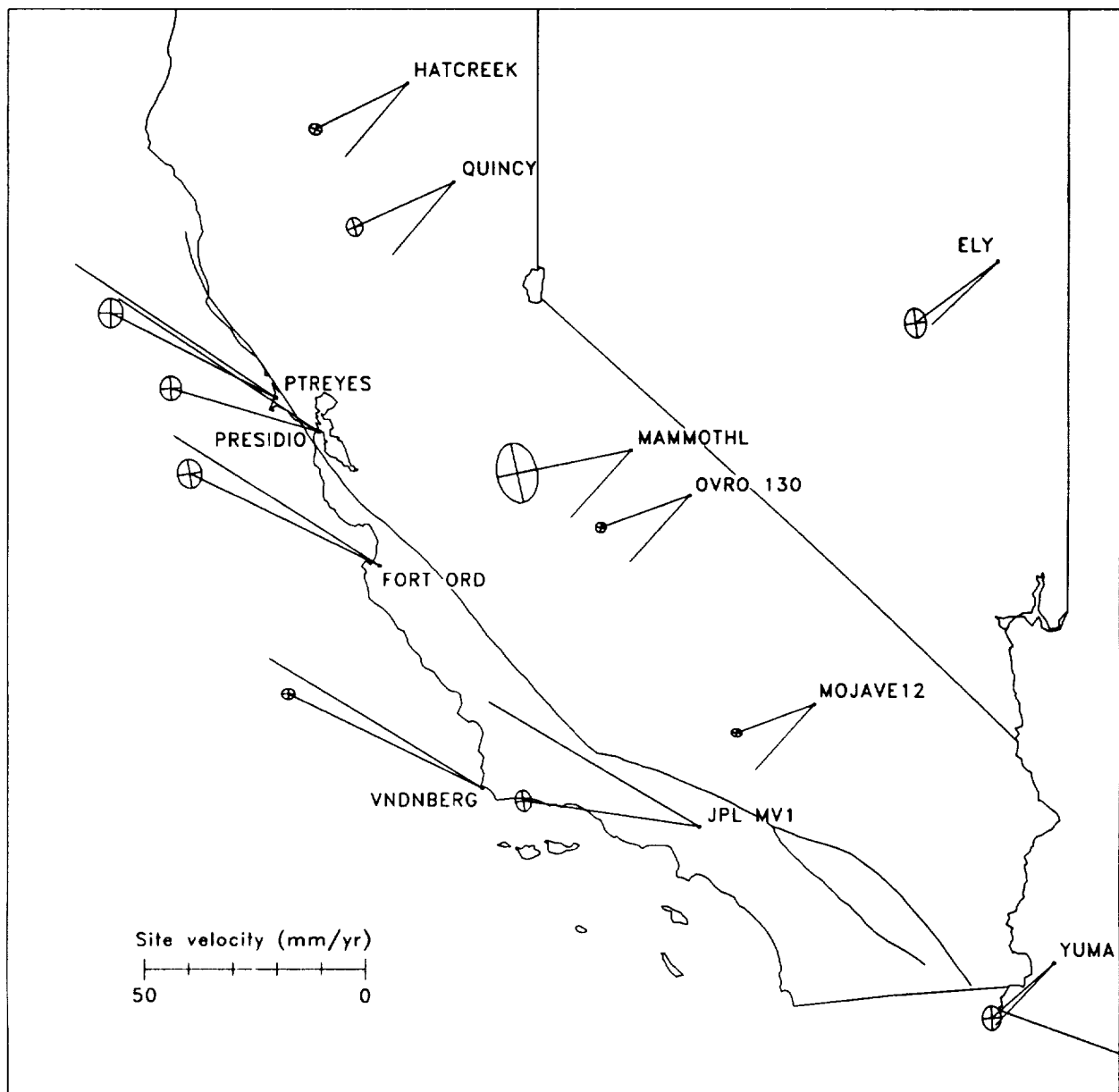


Figure 6. Southwestern U.S. site velocities (3σ error ellipses) from GLB659.

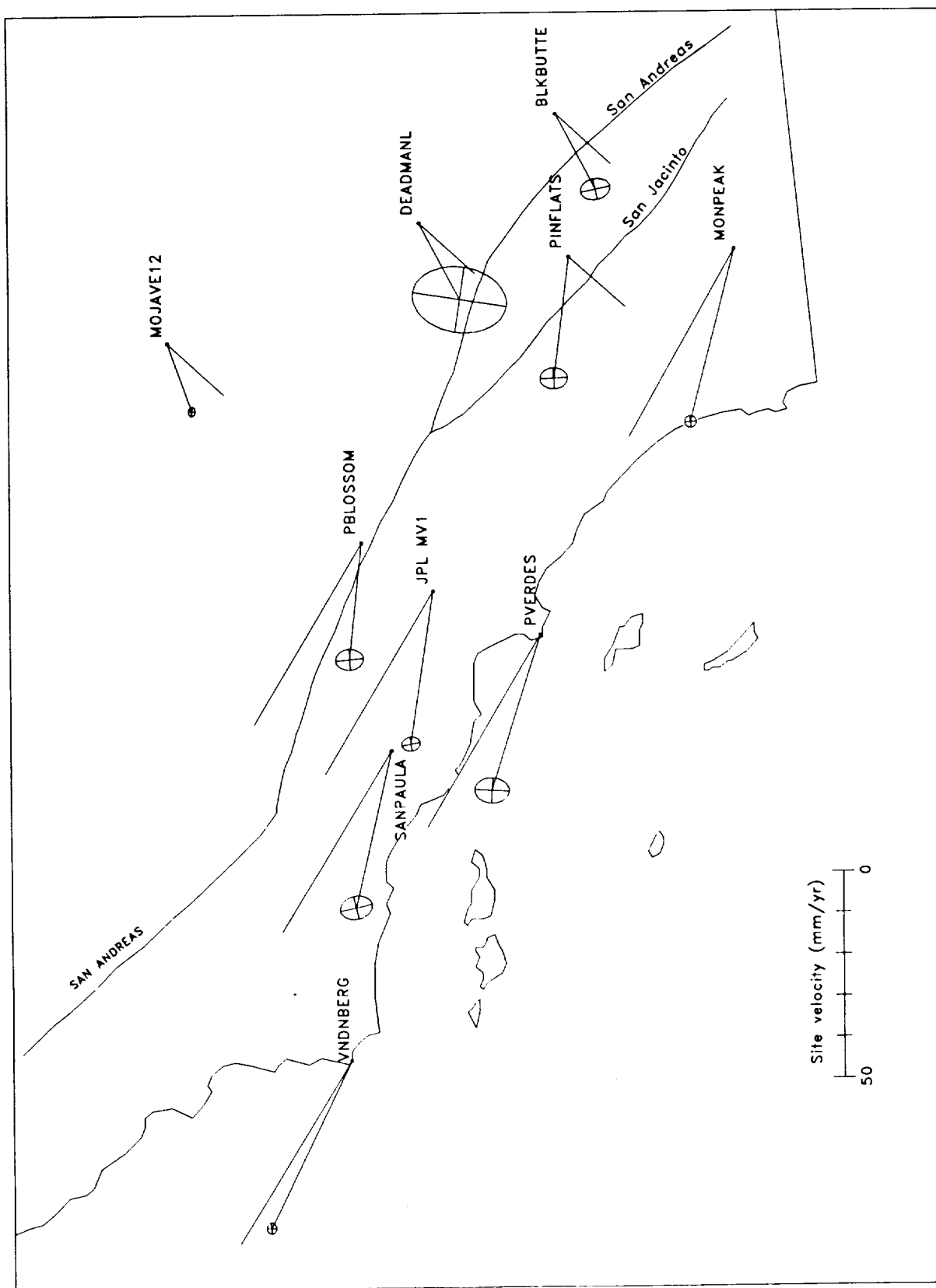


Figure 7. VLBL site velocities (3σ error ellipses) in Southern California.

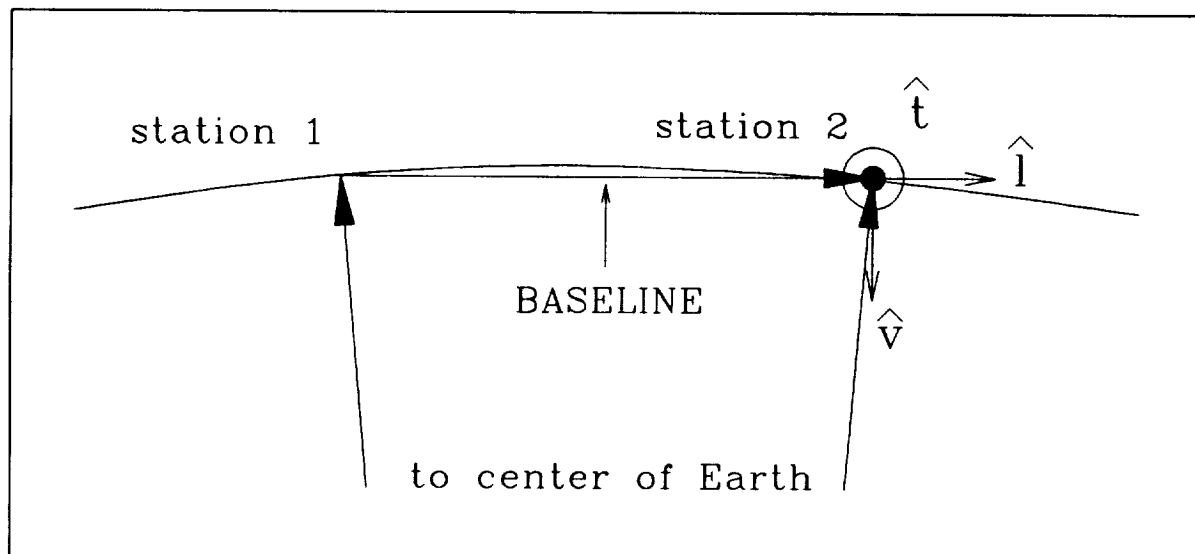


Figure 8. Baseline component axes. The figure is in the plane containing both stations and the center of the Earth. Unit vectors \hat{t} , \hat{l} , and \hat{v} , for the transverse, length, and vertical components, respectively are shown at station 2. \hat{t} is perpendicular to the page and directed outward, \hat{l} is toward the right, and \hat{v} is downward.

motion these baselines would have shown little or no transverse motion. The best EOP values in this series begin after 1983 when four-station IRIS measurements every 5 days became routine. Between mid-1981 and the end of 1983, single-baseline POLARIS data were available that gave good determinations of UT1 and the x-component of polar motion. Prior to mid-1981, BIH Circular D values derived largely from optical data were used. Consequently, the consistency of transverse values may be weak before 1984 (depending on the orientation of the baseline) and is very poor before 1981. The uncertainties and correlations of the EOP values from GLB658 and the larger nominal uncertainties for the BIH values were propagated by SOLVE into the errors of the baseline components. The largest effect is on the transverse error. The vertical error, being dominated by other effects, is weakly affected and the length error is independent of orientation. For the purposes of geodetic interpretation, the HAYSTACK and WESTFORD antennas, which are only 1.24 km apart, can be considered to be identical. In the tables for HAYSTACK the results from the WESTFORD antenna have been mapped to HAYSTACK. The mapping used a geodetic tie between the antennas (Noll, 1989) which was derived from an NGS ground survey.

Summaries of the relevant statistics of the baseline components and their rates of change as determined from the results of solution GLB660 appear in Tables 6.1 through 6.4 in this report. These tables include the weighted mean baseline length values, the weighted rms scatter about the mean length values, and, where a useful value could be computed, the mean rate of change of baseline length over the span of the entire available data. The endpoints of some baselines have been observed to experience discontinuous displacements, notably YAKATAGA and FORTORDS. Thus the determined rate may not reflect the short-term steady-state evolution of the baseline in these cases. The rate of change is not presented if there were fewer than five observing sessions or if the sessions did not span at least 2 years. The baseline length at January 1, 1988 is also tabulated for those baselines for which rates were determined. The least-squares mean and rate estimates were based on the formal standard errors of the individual baseline length values. The listed error for each mean and rate value was computed by scaling the formal error from the least-squares estimate by the square root of the reduced χ^2 of the fit. The weighted rms fit of the data about the best-fit

line is also given where relevant. Similar information is given for the transverse and vertical components, except that the mean and reference epoch values, being from an arbitrary origin, are omitted. Also, rates are not given for the vertical components as the uncertainty in vertical rate is generally much greater than for rates in the length or transverse components.

Section 7 (Figures 7-2 through 7-153 and Tables 7.1-7.270) present the time evolution of these same baselines. The baseline results are presented in print in several forms: summaries of baseline rates and consistency, plots of the three baseline components as functions of time, and tables of values for baselines with insufficient measurements for useful plotting. The machine-readable report contains all the baseline data arranged first alphabetically, then chronologically.

3. Earth orientation

Earth orientation results from solution GLB658 are presented graphically in print and are tabulated together with their correlations in the machine-readable version. Because VLBI cannot measure absolute Earth orientation, a reference day, November 6, 1986, was selected to fix the geographic pole and UT1 angle. The reference day x , y , and UT1 values were quadratically interpolated from BIH Circular D.

The results from single-baseline sessions (POLARIS and scattered others) are insensitive to Earth rotations around the baseline direction and therefore measure only two components of Earth rotation. These two components are linear combinations of UT1 and polar motion. In order to handle these sessions in a mathematically rigorous fashion, UT1 and both components of polar motion are estimated using weak constraints. The resulting EOP values, uncertainties, and correlations correctly represent the Earth rotation information content of the sessions. It is critical that any uses of the Earth rotation data from the single-baseline sessions account for not only the values and their uncertainties but also for the correlations.

The tabular values are the unmodified results from the GLB658 solution. In particular, no smoothing has been applied, and no corrections have been made to remove known tidal variations from the UT1 values. For comparison with IERS Bulletin B values or other smoothed series, the tidal terms should be removed from the UT1 values.

The nutation offsets from the IAU 1980 nutation series, estimated in solution GLB658 for each session, are tabulated in the machine-readable version and are plotted in the printed report. These offsets are with respect to the celestial pole of the reference day November 6, 1986, which is defined by the conventional precession and nutation models.

D. Formal Errors

The formal errors for all estimated parameters are computed from the covariance matrix of the relevant solution. The weight applied to each observation includes three terms: SNR measurement error, ionosphere calibration error from the SNR of X- and S-band observations, and normalizing white noise root-sum-square added for each session. The last term is computed for each session such that the reduced χ^2 of the fit from a standard single-session solution is reduced to unity. In the standard solution, site positions are estimated using a good *a priori* source catalog without adjustment and the continuous piecewise-linear clock and atmosphere parametrization discussed above. It is evident from the χ^2 s of the fits of baseline components that the formal errors are underestimated, primarily because of unmodeled errors in the troposphere.

V. QUALITY OF RESULTS

A. Trends in Quality Improvement

1. Post-fit delay residuals

The simplest indicator of the quality of VLBI results is the post-fit weighted rms residual delay (*wrmsrd*) for a large global solution or for individual data sets within a large global solution. The *wrmsrd* reflects both intrinsic data quality and the modeling and parametrization of the solution. Improvement in the SNR of the VLBI observations and consequent decrease in measurement noise, for example, should lead to less scatter in the post-fit residuals. On the other hand, inadequate modeling and parametrization would lead to greater scatter.

Figure 9 shows the *wrmsrd* for each of the 1073 sessions in the GLB660 solution. The vertical axis is the *wrmsrd* in picoseconds and the horizontal axis locates the date of the session. A running average of the *wrmsrd*'s was computed and plotted as a connected line to assist in showing the trends. The point at each session date is the unweighted average of the sessions within 60 days of the session. The trend is generally toward decreasing scatter, reaching ~40 ps at the end of 1989. There are clear seasonal variations with less scatter in the winter than in the summer. The seasonal trends probably indicate an inadequacy in handling tropospheric fluctuations since the SNR of individual observations depends on factors which have little or no seasonal variation.

Figure 10, 11, and 12 are plots similar to Figure 9 but restricted to POLARIS/IRIS, the CDP fixed station, and the CDP mobile data, respectively.

The POLARIS points (shown as crosses) are, with few exceptions, single-baseline sessions involving either HAYSTACK or WESTFORD and HRAS 085. The IRIS sessions (shown as diamonds) use a homogeneous set of four or five stations. From 1984 until the middle of 1989, the sites were WETTZELL, WESTFORD, RICHMOND, HRAS 085 and, once a month, ONSALA60. In August 1989, MOJAVE12 replaced HRAS 085. POLARIS and the first year of IRIS are very similar. The average *wrmsrd* ranges from 60 to 80 ps. The seasonal pattern can be seen even in the early POLARIS results. After 1985, the average *wrmsrd* improves somewhat to a level near 40 ps. However, the seasonal pattern is more apparent. In the most recent years the average *wrmsrd* is ~35 ps in the winter and ~45 ps in the summer. This behavior is probably caused by seasonal variation in the wet delay, which is more stable in winter and more unsettled in summer at middle latitudes. Parametrizing the atmosphere by adjusting the rate of change of the zenith path delay once per hour is probably adequate in the winter but may be insufficient in the summer. The 35-ps *wrmsrd* seen in the winter probably reflects the actual delay noise, which is similar throughout the year.

The CDP fixed-station results (Figure 11) show only marginal improvement with time and no clearly defined pattern. In the most recent years the *wrmsrd*'s from CDP fixed-station sessions are generally slightly poorer than from IRIS sessions in the same time interval. However, the CDP sessions are quite heterogeneous. At one extreme are intra-European sessions using only large (≥ 20 -m diameter), dedicated radio telescopes with baselines under 2000 kilometers. At the other extreme are Pacific sessions including small (9 to 12-m diameter) antennas and baselines over 10000 km in length. A single plot may not fairly represent the CDP sessions, but there are insufficient numbers of any one type to group them separately.

The *wrmsrd*'s for the mobile sessions (Figure 12) are comparable to those of the CDP fixed-station sessions despite the lower sensitivity of mobile systems. This may be related to the continuous piecewise-linear atmosphere model used in SOLVE. The rate of change of the zenith path delay is normally adjusted once per hour, but this becomes less effective in tracking rapid fluctuations in the troposphere

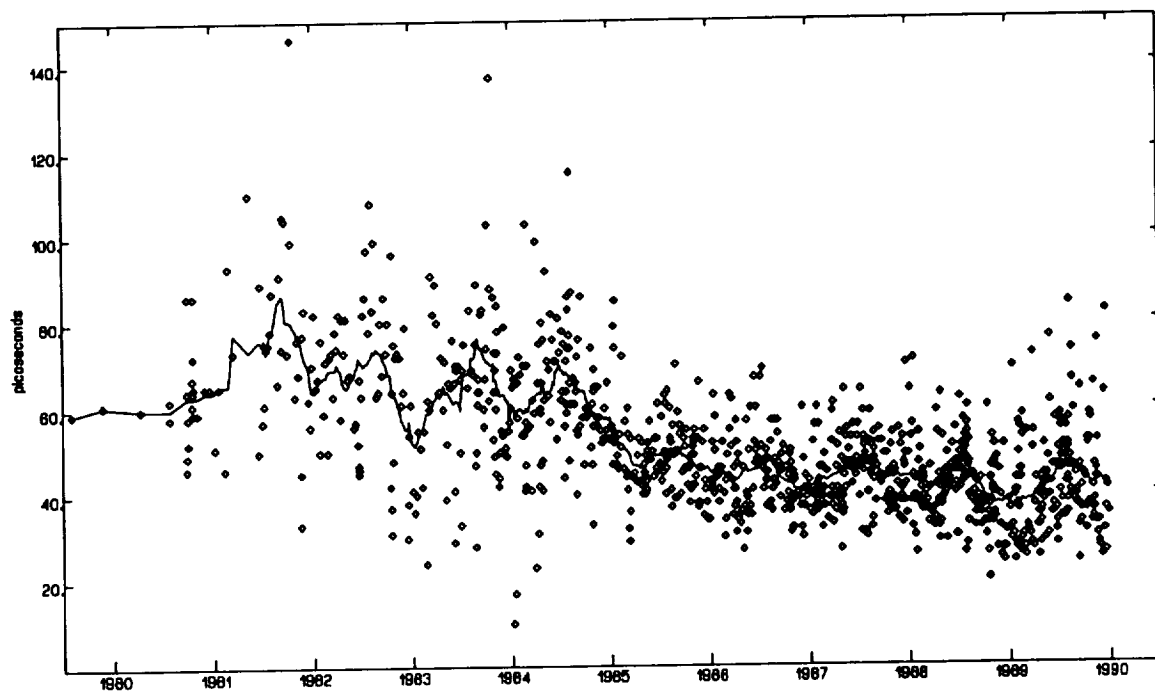


Figure 9. Residual delay fits, all sessions from GLB660.

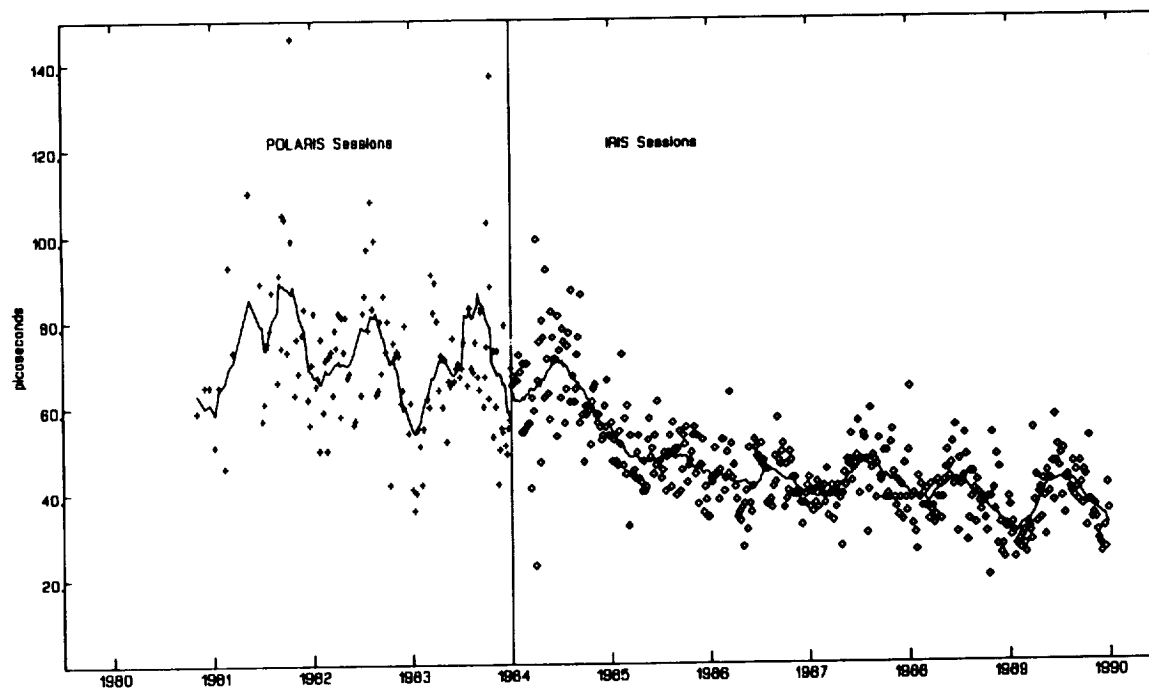


Figure 10. Residual delay fits, POLARIS and IRIS sessions only.

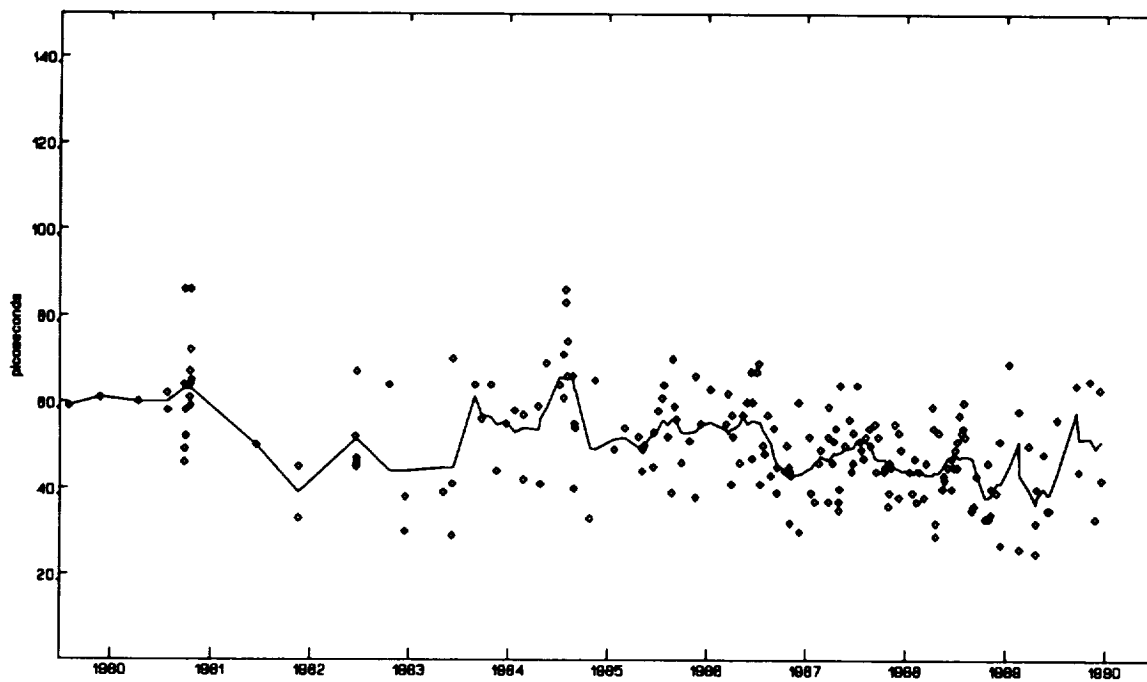


Figure 11. Residual delay fits, CDP fixed stations from GLB660.

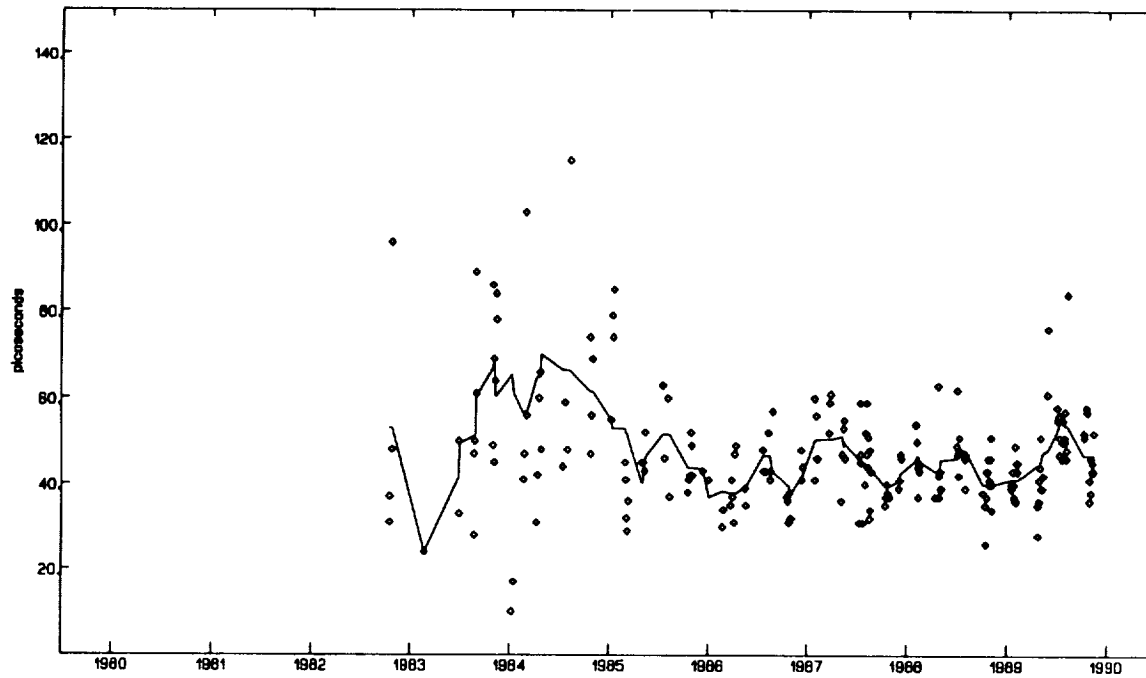


Figure 12. Residual delay fits, CDP mobile sites from GLB660.

as the time between scans becomes shorter. Thus, if all other factors are equal, the algorithm will fit a slow schedule better than a fast one. In mobile sessions a data acquisition rate of four scans per hour is typical while in sessions using only fixed stations the usual rate is twice as fast.

2. Formal errors and repeatability of baseline lengths

Baseline length formal errors and the repeatability of the lengths are two other means of assessing data quality improvement.

If the length formal errors are not dominated by unmodeled systematic effects, then decreasing length formal errors should be accompanied by improvements in the repeatability of the lengths. This relationship can be evaluated using data from frequently measured baselines, examples of which are those from the IRIS network and certain CDP experiments using MOJAVE12.

It can be seen from the lengths of the 5998-km WESTFORD-WETTZELL baseline shown in plot 7-153 that the scatter about the best-fit line improves with time. (In the last year the point-to-point repeatability is sufficiently good to show the existence of a systematic seasonal effect.) Figure 13 is a comparison of formal errors and short-term repeatability for the WESTFORD-WETTZELL baseline. The diamonds in Figure 13 are the baseline length formal errors for 485 sessions plotted as a function of session date. The solid line indicates actual baseline length repeatability for comparison with the formal errors. At the epoch of a given session, the value of the line is the weighted rms residual (*wrmsr*) about the mean length of those sessions in a time interval centered at the epoch of interest. The width of the time interval is 120 days to give a measure of short-term repeatability with sufficient points to be meaningful. (For other plots of this type the interval is as large as a year for baselines with sparse measurements.) The asterisks are an unweighted running mean of the formal errors using the same time interval. At the beginning of 1984, the average formal error is ~22 mm. In 1989 it is consistently less than 10 mm. Moreover, in 1989 there is an apparent seasonal effect in the formal errors. It can be seen that the short-term repeatability is quite variable but in general, follows the trend of the formal errors until the middle of 1988.

The plot can be divided into three intervals: 1984, 1985-87, and 1988-89. In the first interval there is a significant improvement in both formal errors and repeatability from 20-25 mm to 10-15 mm. During this period the four-station IRIS network was beginning operations. There is variation in both formal errors and repeatability in the second interval but no long-term trend. In the last interval the formal errors decrease significantly (from ~13 mm to 6 mm), but there is no corresponding improvement in repeatability, which appears to have a seasonal signature. In January 1988, IRIS introduced new schedules using more sources and subnetted observations, which may explain some of the improvement in formal errors.

Figure 14 is the plot for the 2044-km RICHMOND-WESTFORD baseline from the IRIS network. The formal errors and repeatability both start at 10-15 mm and decrease to ~5 mm. There are trends in these data which are not clearly seasonal. For example, there is a peak near January 1986 but a minimum near January 1987. The overall fit is better than WESTFORD-WETTZELL despite the generally poor performance of the Richmond antenna, probably because of the shorter baseline length.

Figure 15 shows ONSALA60-WETTZELL, a short IRIS baseline (919 km) connecting two excellent radio telescopes. The repeatability is 4-7 mm through late 1988 and closer to 3 mm afterwards. This baseline may represent the best absolute repeatability although not the best fractional repeatability.

Figure 16 shows the 351-km MOJAVE12-VNDNBERG baseline. The formal errors decrease from 10-20 mm in 1984 to under 5 mm in 1988 and 1989. The repeatability is somewhat worse. These results are surprisingly good considering that VNDNBERG

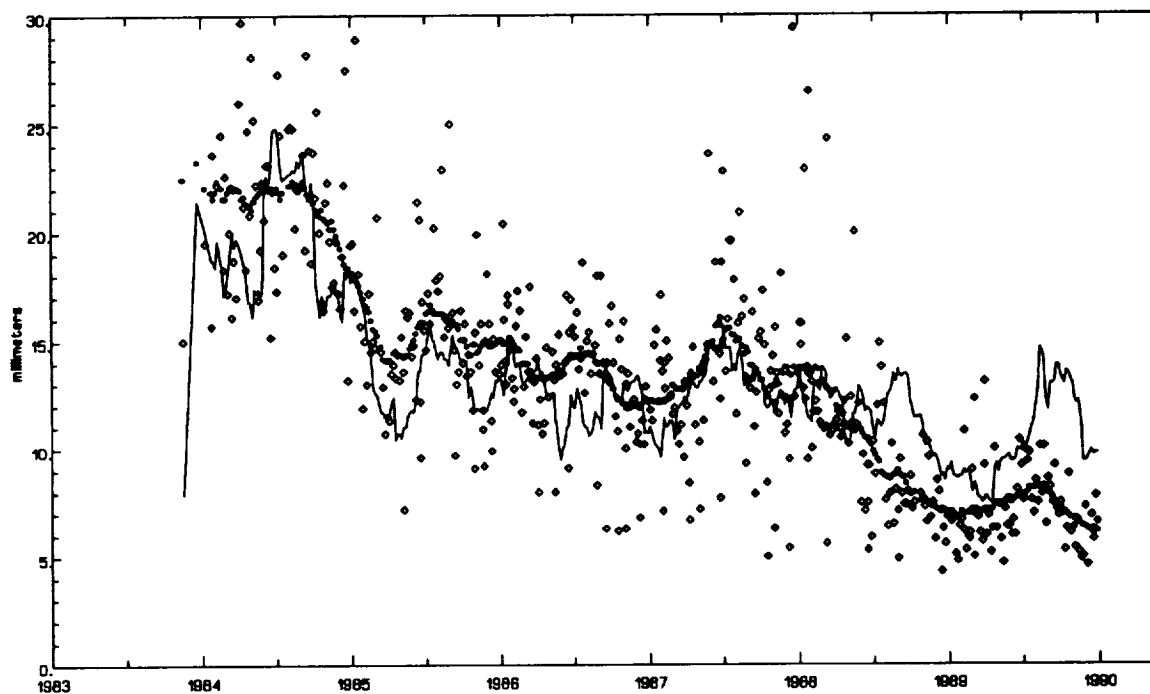


Figure 13. WESTFORD to WETTZEL Baseline length formal errors and repeatability.

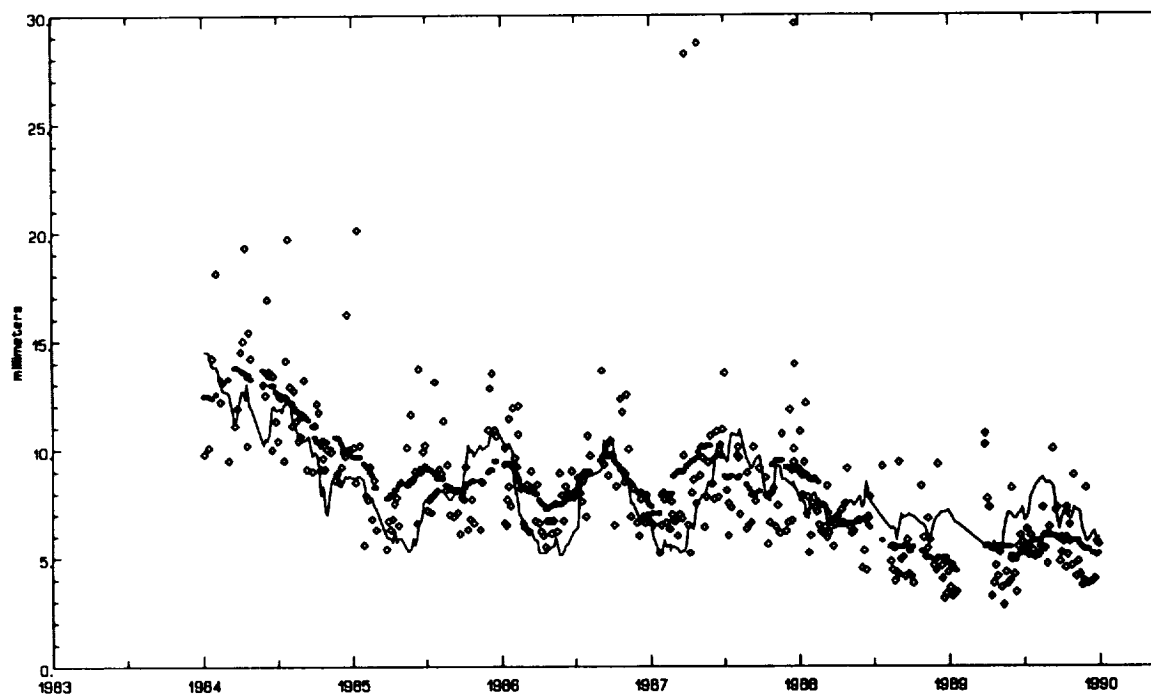


Figure 14. RICHMOND to WESTFORD baseline length formal errors and repeatability.

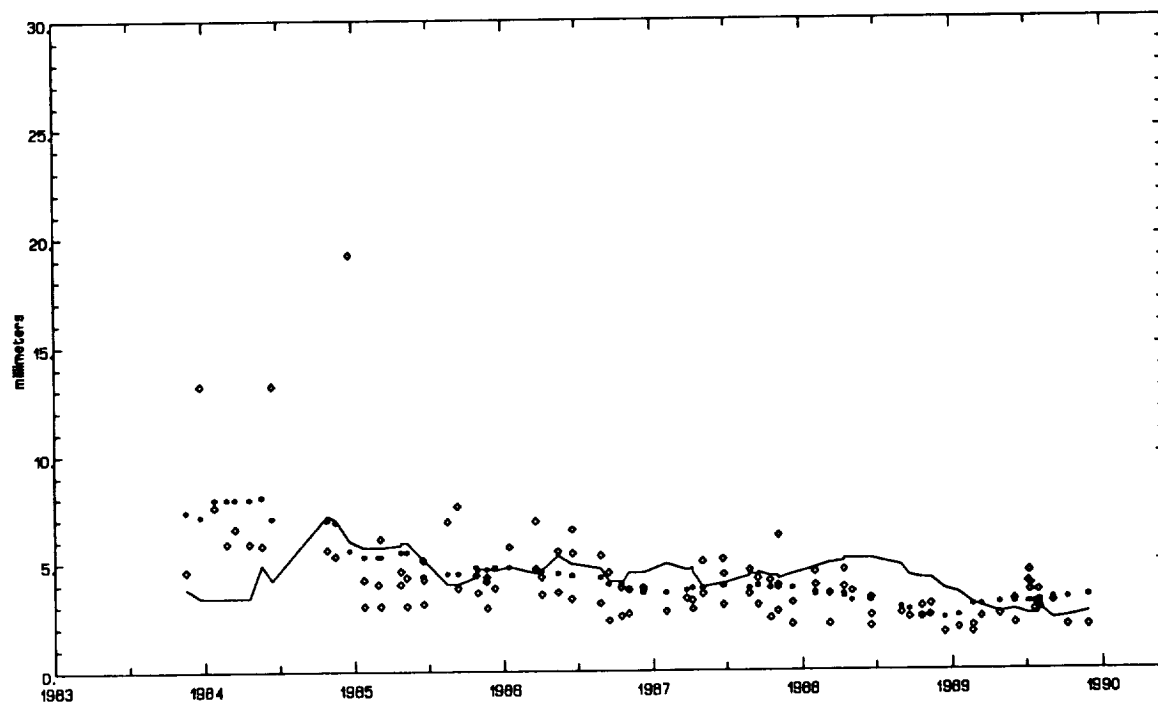


Figure 15. ONSALA60 to WESTFORD baseline length formal errors and repeatability.

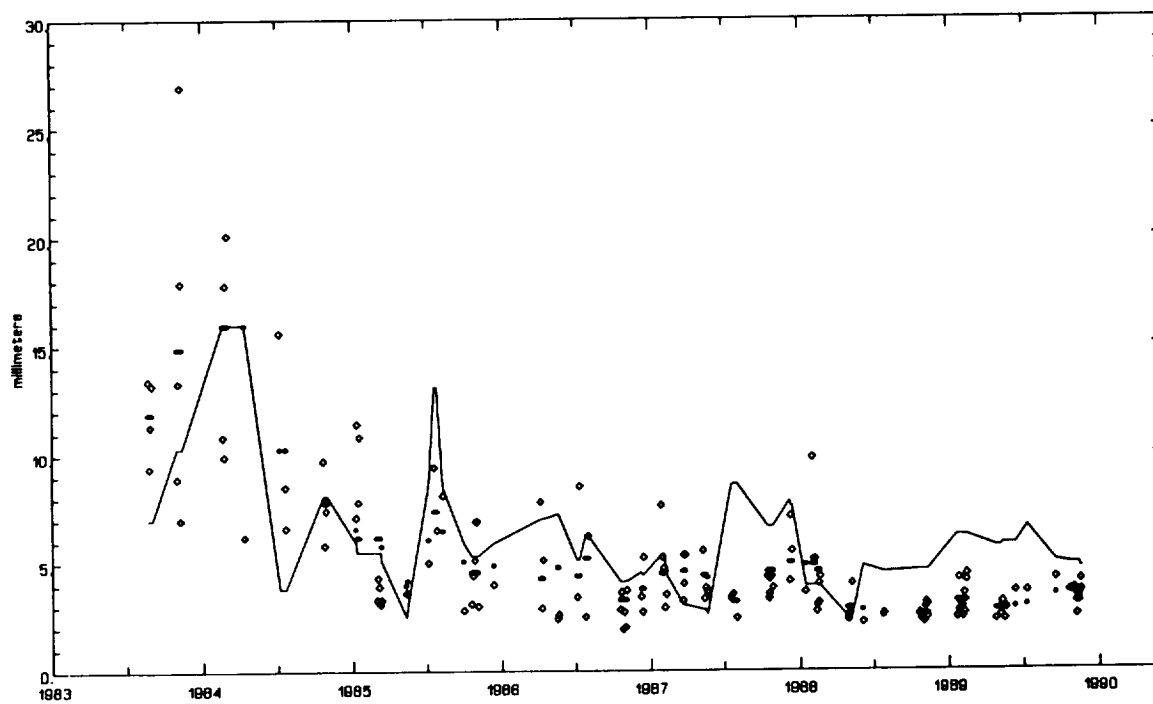


Figure 16. MOJAVE12 to VNDNBERG baseline length formal errors and repeatability.

was an old, refitted 9-m transportable satellite tracking antenna, although the short baseline length may contribute to the good results.

B. Scaling of Uncertainties With Length

A key geodetic product of the CDP (and related programs) is the time series of baseline lengths. Table 6.2, Length Statistical Summary, contains the *wrmsr* about a fitted straight line of those length time series with at least five measurements spanning a time interval of 2 years or more. The *wrmsr* is a measure of the length repeatability, assuming that the actual underlying motion is linear. Figure 17 plots the *wrmsr* values for the 155 baselines meeting the criteria for inclusion in Table 6.2 as a function of baseline length. The *wrmsr* is as low as 3 mm for the shortest baselines and as large as 57 mm for one very long baseline. These *wrmsr* values were fit with a simple, two-parameter linear function of baseline length, a scaling law that fits the data reasonably well, is easy to understand, and follows the form of earlier reports presenting similar information.

It is convenient to divide the data into three groups: 0 to 6000 km, which is nearly one Earth radius (128 baselines); 6000 to 9000 km (20 baselines); and greater than 9000 km (7 baselines). Three sets of scaling law parameters have been estimated with the following values:

Full Range	$4.9 \text{ mm} + 2.6 \text{ ppb} * \text{length}(\text{mm})$
0 to 9000 km	$5.0 \text{ mm} + 2.0 \text{ ppb} * \text{length}(\text{mm})$
0 to 6000 km	$6.8 \text{ mm} + 1.1 \text{ ppb} * \text{length}(\text{mm})$

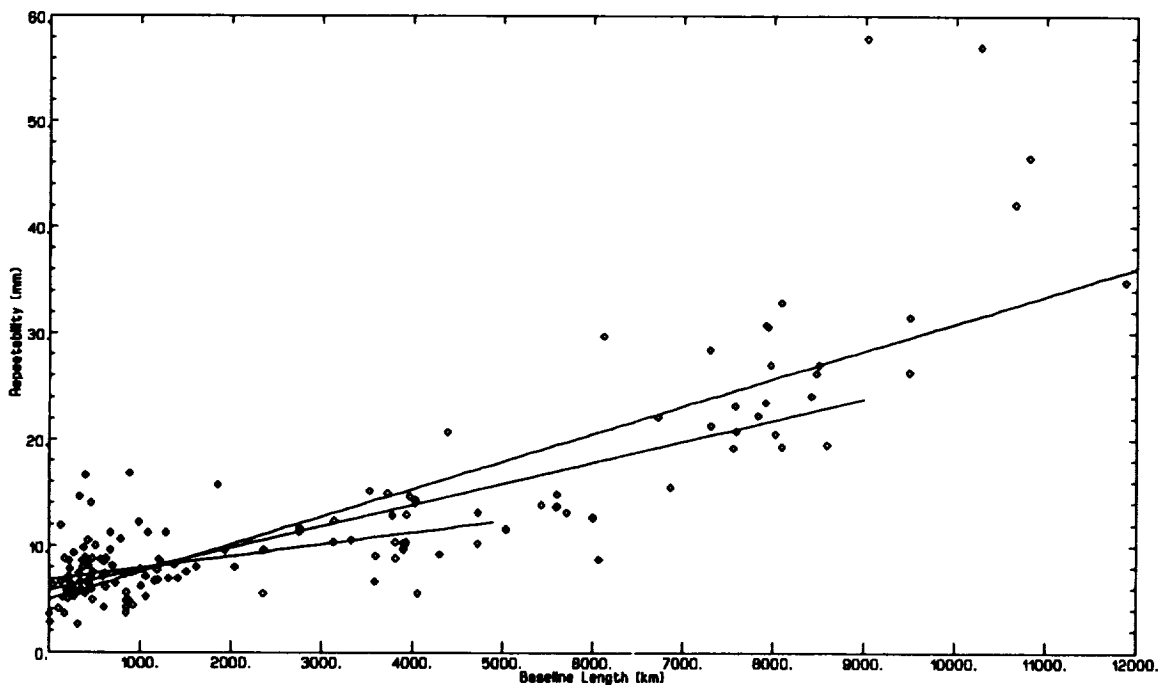


Figure 17. Baseline length repeatability vs. baseline length.

These results should not be overinterpreted. A reasonable uncertainty in the fitted coefficients is ~50%. There are numerous conceptual difficulties in attempting to characterize VLBI precision with any scaling law. The baselines have been selected by somewhat arbitrary criteria. However, baselines with very few measurements or short time spans must be deleted to avoid possible problems with insufficient sampling. Perhaps a more serious problem is that all *wrmsr*

values were given unit weight in the fit. If *wrmsr* values were weighted by the number of sessions for each baseline, then the IRIS baselines (each having more than 400 sessions) would dominate the parameters of the scaling law. The many baselines with 10-20 sessions would have virtually no effect.

There are seven baselines longer than 9000 km, all with either KASHIMA or HARTRAO. The full-range results should be approached with caution as KASHIMA has had persistent operational difficulties in recent years while HARTRAO has not participated in many sessions. In addition, the two sites of a baseline normally can mutually observe sources over a substantial portion of the sky and can make observations in many directions. For baselines longer than 9000 km the common sky is very restricted and the baseline parameters are essentially inferred from measurements to the other stations in the network. Thus, the scaling law estimated including these seven baselines is probably pessimistic. The scaling laws for the shorter baselines more properly represent the state of VLBI length precision.

C. Conclusions

By any measure, the geophysical results produced by the Mark III VLBI system have improved significantly since 1980. Even on baselines as long as 6000 km the repeatability now being achieved in routine operations is better than 10 mm.

VI. MARK III SYSTEM EVOLUTION

A. History

The Mark III VLBI system was designed and built in the late 1970s and thus antedates the Crustal Dynamics Project by several years. The first Mark III data were taken between HAYSTACK (Mass.) and NRAO 140 (Green Bank, W.Va.) in a test experiment in April 1977. The first Mark III geodetic VLBI experiment was conducted in August 1979. The Mark III system (including field hardware and software elements, correlators, experiment design, and data analysis) has since had a continuous series of incremental improvements.

The following is a partial chronology of the Mark III system with emphasis on improvements and milestones. This list includes only changes that have a direct effect on the results in this report. Changes made to the field system after 1989 or to the analysis system since the GLOBE solutions for this report are not included. Improvements made at NGS, CfA, JPL, or MIT in their analysis systems are also not discussed, although many improvements in these systems resulted in advances in the Goddard system. It should be noted that improvements in the analysis system have a retroactive effect since subsequent solutions use old as well as new data.

B. Chronology of Geodetic Mark III VLBI

1. Data acquisition network and system hardware

1981 WESTFORD and HRAS 085 become dedicated POLARIS stations.

1983 MOJAVE12 is equipped as a dedicated geodetic VLBI base station.

1983 Improvements begin in the environmental control of the hydrogen masers, especially of ambient temperature, to provide better frequency stability.

1984 GILCREEK and KAUAI become dedicated CDP base stations providing reliable personnel and a stable equipment configuration similar to WESTFORD, HRAS 085 and MOJAVE12. These two stations provide a long north-south baseline complementing many well-established east-west baselines and increasing the strength of the terrestrial reference frame.

1984 NGS introduces a four-station IRIS network to replace POLARIS and increases operations to a 5-day interval. The combination of north-south and east-west baselines in the same network together with more frequent measurements permits the routine production of a vastly improved Earth rotation series. This series, in turn, leads to a reduction of EOP errors in the analysis of mobile sessions.

1984 KASHIMA comes online with the Japanese K3 system and bridges a large gap west of North America. Transpacific and polar schedules become possible.

1984 Field Effect Transistor (FET) receivers with cryogenic cooling are introduced lowering the system temperatures and improving the SNR of the observations. With improved SNR, shorter scans increase the observations scheduled in each session and improve the sky coverage.

c1985 Instrumentation tapes are replaced by videotapes with reduced bit error rates on playback and improved SNR.

1986 High-Electron-Mobility Transistor (HEMT) amplifiers are introduced that lower the system temperature and further improve SNR.

1986 The introduction of narrow-track recorders reduces the number of tape changes in a typical session by a factor of twelve and allows more observations to be scheduled.

1986 The addition of HARTRAO, the first Southern Hemisphere station to participate in geodetic VLBI, improves the overall geometry of the terrestrial reference frame.

1988 New filters in the Mark III video converters improve the accuracy of delay calibration by reducing spurious noise signals.

1989 A new generation of phase calibration system is introduced, effectively improving the timing system stability and consequently reducing systematic errors.

1989 DSS65 in Australia begins participation and improves the geometry of the terrestrial reference frame around the Pacific.

2. Correlator

1977 First Mark III fringes are obtained from the near-operational Haystack Mark III correlator.

1979 The Haystack single-baseline correlator is used on data obtained from the first Mark III geodetic experiment.

1982 Single-pass correlation of 6 baselines becomes possible at Haystack.

1984 The final test of Mark IIIA correlator module is completed.

1986 The Washington correlator becomes operational.

1986 Ten-baseline correlation becomes operational at Haystack, greatly enhancing the correlator capacity.

1988 The 'split' correlation option is implemented permitting the simultaneous correlation of two sessions.

1988 The Mark IIIA correlator is introduced, supporting simultaneous processing of up to 10 baselines from up to 8 sites.

3. Experiment design

1981 A better frequency sequence is implemented, simplifying the resolution of group delay ambiguity.

1983 The requirement that mobile systems be scheduled to produce direct observations between mobiles is relaxed. At least two base stations are used in all mobile sessions. The shorter scans increase the number of observations resulting in better sky coverage at each mobile site.

1985 Subnetting within schedules becomes routine. This improves the geometry of the schedules primarily by providing better sky coverage at each site.

1986 Low elevation observations are incorporated into schedules to improve the recovery of tropospheric parameters.

1987 Most sources with significant resolvable structure are removed from CDP schedules to reduce unmodeled systematic error.

1988 IRIS begins using subnetted schedules and a larger source catalog resulting in better sky coverage, more robust schedules, and EOP results with smaller formal errors.

1988 Scan lengths are tailored to baseline sensitivity to reduce idle time and allow more observations, especially with the larger antennas. A sensitive antenna begins slewing to the next source in its schedule while less sensitive antennas continue with the previous observation.

1989 Source selection is tailored to antenna and baseline parameters within networks to optimize SNR of individual observations.

1980-1990 Routine scheduling of source survey sessions increases the size of the source catalog and allows greater freedom to avoid sources with known or suspected resolvable structure.

1980-1990 The number of sources in a typical session is increased from 15 to 25 for better sky coverage and more robust schedules.

1980-1990 Frequent improvements are made in the user interface to the scheduling program SKED including improved display graphics to allow better evaluation of schedules while being written. Various modifications reduce scheduling errors and antenna idle time, increase the probability of obtaining fringes on individual scans, and allow schedules to be written on shorter notice.

4. Data analysis

1976 CALC 1 is completed replacing VLBI-3.

1978 CALC 2 is introduced using a new value of the precession constant and an improved nutation model.

1981 CALC 5 is introduced using the J2000.0 precession model and the IAU 1980 nutation model.

1985 CALC 6 is introduced with new models for pole tide, vertical ocean loading and solid Earth tides, and the Yoder UT1 model for variations caused by zonal Earth tides.

1985 The analysis system is moved from HP 1000F to HP A900 to support more complicated solutions including a large increase in the number of parameters.

1985 The estimation of baseline-dependent clock offsets reduces clock-induced systematic errors.

1986 The use of VLBI EOP series for mobile sessions results in a more consistent terrestrial reference frame.

1987 SOLVE/GLOBL replaces SOLVE-2 making very large solutions practical.

1987 The CfA 2.2 dry troposphere model is introduced to reduce systematic errors at low observing elevations.

1988 Continuous piecewise-linear atmosphere estimation is introduced to model short-term atmosphere fluctuations.

1988 The use of Earth orientation covariance for mobile sessions is implemented in SOLVE to give more accurate formal errors.

1988 Phase delay rate data are eliminated from solutions improving the repeatability of the baseline length results.

1989 Continuous piecewise-linear clock estimation is implemented to reduce systematic clock errors and to provide more objective parametrization than the previous manual, discontinuous polynomial model.

1989 CALC 7 is introduced with an improved relativity model. See also the discussion in the appendix on CALC 7.

1989 The introduction of vertical ocean loading in the large solutions reduces systematic errors.

1990 The HP 835 replaces the HP A900 for GLOBL solutions. Larger, more complicated solutions become practical.

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APPENDIX

OVERVIEW OF CALC 7

I. INTRODUCTION

CALC is the program in the Mark III VLBI Data Analysis System that computes theoretical delay and rate observations, partial derivatives of these observations with respect to various geophysical, astrometric, and environmental parameters, and other related parameters of interest. The goal in developing new versions of CALC is that a new version should embody the most complete, generally accepted models at the time of its release.

CALC 7 is the latest in the series of CALC programs developed by the CDP beginning in 1975. CALC was derived from the models and algorithms in the VLBI-3 program developed by D. Robertson at MIT in the early 1970s (Robertson, 1975); VLBI-3 came from the MIT Planetary Ephemeris Program (PEP) of the 1960s. It is expected that CALC will undergo further refinement as modeling of the VLBI observables advances. In the current implementation the models in the IERS standards have generally been used.

The principal reason for CALC 7 was to replace the Robertson VLBI delay algorithm, which was adequate for the precision of Mark I VLBI observations. The Mark III system with more precise, dual-frequency observations required a model with more complete treatment of general relativity. Prof. Irwin Shapiro developed such a model in 1983 (private communication) and these theoreticals were available in CALC 6 as corrections to the Robertson model. However, there were two errors in the formulation, which were not discovered until much later. The first was a simple blunder--one term involving the gravitational potential at the reference site had the incorrect sign. The second was an inadequacy in the model. The relativistic 'propagation-media-like' correction to the delay caused by the mass of the Sun was handled by perturbing the quasar position. This perturbed position was then used to evaluate the remainder of the model. This algorithm did not account for the additional delay caused by the mass of the Sun during the interval between the arrival times of the quasar signal at the two sites. In 1989, Shapiro produced a revised model based on the same underlying relativity theory as the 1983 model. However, the new model used the unperturbed quasar position and had a specific term for the solar deflection to remedy the previous deficiency. In addition, theoretical work by Hellings on the VLBI delay (Hellings, 1986a,b) provided an alternative algorithm.

II. MODIFICATIONS FOR CALC 7

A. General Comments

CALC 7 was originally planned as a fully backward compatible upgrade of CALC 6. However, backward compatibility proved to be too burdensome and was not implemented.

In the documentation for earlier versions of CALC, no distinctions were made among the concepts of group delay, phase delay, and VLBI phase, or among their rates. All computations that depended on group delay and phase delay as distinct concepts were handled by programs downstream of CALC. With the implementation of the feed rotation module in CALC 7 the distinctions are necessary. In the following discussion the words "delay" and "rate" are used without further modification to mean group delay and VLBI phase rate, which are the two conventional VLBI observables. The other observables are named as needed.

The change from CALC 6 to CALC 7 provided an opportunity to modernize and upgrade many aspects of the code throughout CALC. Upper and lower case were used to improve readability. Holleriths and their associated structures were eliminated in favor of character strings. A new set of database handler routines was

written to be compatible with this change. Much code made obsolete by past changes was eliminated.

B. The Relativistic Delay Models

Theoretical delays and rates from Shapiro's 1989 relativistic delay model (see McCarthy, 1989) are computed and stored in each VLBI database. The CALC 6 Shapiro corrections to the Robertson model are no longer stored. Any such corrections from earlier database versions as well as the Robertson theoreticals are deleted by CALC 7.

Shapiro's 1989 algorithm is documented on pp. 71-73 of McCarthy (1989). The expression for $\Delta\tau$, the VLBI delay, is divided into six terms of which the third is $\Delta\tau_{pm}$, where the pm means 'propagation-media-like'. $\Delta\tau_{pm}$ is divided into three terms. The first and second involve the masses of the Sun and the Earth, respectively, and are the gravitational deflection and retardation terms for the Sun and the Earth. The third term is the sum of the tropospheric and ionospheric refraction delays. The partial derivatives of the delay and rate with respect to γ of the parametrized post-Newtonian gravitation theory are computed from the Shapiro 1989 algorithm by differentiating the solar 'propagation-media-like' term with respect to γ . The dependence of γ through the Earth's 'propagation-media-like' term is ignored since this term has 25-ps maximum amplitude.

Theoretical delays and rates from the Hellings model (Hellings, 1986b) are also generated and stored in the database. However, in the CALC 7 implementation two modifications have been made: 1) in the computation of the total potential U , the potential from the mass of the Earth is not included, and 2) Shapiro's 'propagation-media-like' term for the mass of the Earth is added. Both modifications were sanctioned in informal discussions with Hellings. The first modification is essentially a choice of relativistic convention. By not including the mass of the Earth the theoretical delays are in the relativistic frame for the geocenter. This is the same convention used in the reduction of satellite laser ranging data (at Goddard and the University of Texas) and is not the frame of conventional electronic distance measurement made on the surface of the Earth. The second modification corrects a deficiency. Hellings derived the term but thought (incorrectly) that the size of VLBI observation errors made its inclusion unnecessary.

The rate algorithms were generated by differentiating the delay algorithms. In the differentiation all time dependencies except those of the unit vectors and the potential were included. The unit vectors and the potential enter the delay algorithms only in relativistic effects.

The Shapiro delay model implemented in CALC 7 is not simply a recasting of his 1983 algorithm. Rather, it is a newly developed algorithm in which the errors are avoided or corrected. (See Ryan, 1989 and Herring, 1989.)

C. Ocean Loading Module Modifications

Site-dependent ocean loading topocentric displacements and velocities are stored in units of meters and meters/second. The total ocean loading delay and rate contributions in units of seconds and seconds/second are stored with each observation. These contributions include the effects of both the horizontal and vertical effects rather than only the vertical effects as in CALC 6. The ocean loading contributions are also stored as separate site-dependent horizontal and vertical contributions in units of seconds and seconds/second. These arrays are organized so that they may be used in SOLVE via the CORFIL scheme.

In the default mode of using the ocean loading module CALC requires a complete ocean loading catalog with amplitudes and phases for both vertical and horizontal components. The catalog amplitudes may be zeros. This catalog is generated by the new versions of the programs SKELETON and KMSG. However, the option exists

to run CALC 7 with no *a priori* horizontal catalog, and CALC will proceed as if all horizontal terms were zero.

D. Feed Box Rotation Module

Phase corrections due to feed rotations are newly implemented for various antenna types used in the CDP. Corrections for X-Y mounts with fixed E-W axis (axis type 4), which have never been used in the CDP for phase delay experiments, are not implemented.

Rate corrections for the effects of feed rotations have been implemented. This effect, which was ignored in earlier versions of CALC, can be significant in particular, generally pathological, situations. For example, when VR422201 is within 1 minute of transit at Westford, the feed rate correction can be over 100 fs/s. The contributions to the rates are stored in the database so that they can be accessed by the CORFIL scheme in SOLVE and can be applied to the delay and rate data configuration of routine geodetic VLBI.

E. UT1 and Wobble Module Modifications

Both Goddard and US Naval Observatory (USNO) versions of EPHEM have been modified to store a UT1-series status flag in the database header to indicate whether the UT1 series in the database is UT1 or UT1R (shorter-than-fortnightly tidal effects smoothed). EPHEM at Goddard uses the Circular D/Bulletin B series while EPHEM at USNO uses the USNO series. CALC 7 may be configured to decide whether to restore the tidal terms to UT1-TAI according to the UT1 series status flag, and it leaves a message in the output database confirming its actions. When the UT1-series status flag is absent, CALC 7 restores tidal terms, i.e., CALC 7 assumes the values are UT1R to provide backward compatibility.

The UT1 and wobble modules have been modified to store with each observation the actual values of UT1-TAI (in seconds) and pole position (in radians) used for the observation. The sense of the UT1 offset is the UT1-TAI, which is the conventional, published sense; the pole position offsets also have the conventional sense. The UT1 table stored in the header of the database has the sense TAI-UT1.

F. Abandoned Specifications

Earlier plans to implement the gravitational bending caused by Jupiter have been abandoned.

III. VALIDATION TESTING

A. Validation of the Shapiro Model

As was discussed in the introduction to this appendix, the 1983 and 1989 Shapiro models took into account the same relativistic considerations but were developed in somewhat different forms. Therefore, when values from the earlier model are corrected for that model's known deficiencies they should agree with the values produced by the 1989 model. The validation was accomplished by comparing values from CALC 7 with corrected values from CALC 6. The CALC 6 values were altered as follows: the Robertson delay and the corrections to the Robertson delay for the 1983 Shapiro model (stored by CALC 6) were extracted from the database and added together. Twice the first half of sixth term (see McCarthy, 1989) in the 1989 Shapiro model (the part involving U) was then added to compensate for the sign error in the 1983 model. Finally, the delay was increased by 2×10^{-8} to account for the missing solar mass retardation term in the 1983 algorithm. The results showed that the CALC 7 Shapiro delays and the modified CALC 6 Robertson delays agree at the < 5 -ps level.

B. Validation of the Hellings Model

The modified Hellings delay algorithm was implemented in CALC 7 as an alternative to the 1989 Shapiro algorithm. The differences between the Shapiro and the modified Hellings values from CALC 7 for the first 50 observations of a South Pacific session on Feb. 18, 1989 were computed. The average and rms delay differences were 0.592 and 1.418 ps, respectively, and the average and rms rate differences were -0.056 and 0.155 fs/s. The modified Hellings and Shapiro models are indistinguishable for the current and foreseeable precision of VLBI.

C. Validation of the Rates for the Shapiro and Hellings Models

The documentation for both the Shapiro and Hellings models describes the delay observable but not the rate observable. The rate models were generated (by J. Ryan) by taking the derivatives of the delay model with respect to time. In the differentiation, time dependencies on the following variables were included: the baseline vector, the solar-system-barycenter velocity of the center of the Earth, the position and velocity of the remote (second) site, and the position of the reference (first) site. The time dependencies of the Earth-Sun unit vector and the potential were not included. A comparison was made of the rates computed from the analytic Shapiro algorithm coded in CALC 7 and rates computed by numerical differentiation for a set of 16 observations. The agreement was only at the few-ps/s level, a factor of 10 larger than typical rate uncertainties. However, the agreement was in the fifth or sixth significant digit, which is perhaps as good as can be expected when comparing numerical and analytic differentiation. The comparison of the rates from the differentiation of the Shapiro and Hellings models showed agreement at well under 1 fs/s. Since the forms of the Hellings and Shapiro models are quite different, this agreement is perhaps the best evidence that the rates have been correctly implemented. Both differentiations made the same assumptions about which time dependencies were relevant.

D. Validation of Feed Rotation Module

Code for the feed rotation module (CPANM) was imported directly from the program PANGL, a program developed by J. Ray to store feed rotation angles into a database. The feed rotation angles stored by PANGL were used successfully to analyze the MOJAVE12-GOLDVENU phase delay experiment, thus verifying their correctness for both Az-El mounts (GOLDVENU) and X-Y mounts (MOJAVE12).

Totally new code was implemented in this module to compute the effect of the feed rotation on the rate observable. The algorithm was produced by differentiating the feed rotation angle algorithms. A comparison was made between the analytic derivative computed in CALC and a numerical derivative. A test case was chosen to make the effect as large as possible, VR422201 transiting almost directly overhead at WESTFORD when the azimuth must change from due east to due west in only a few minutes; except in this case, the entire effect is under 1 fs/s and the agreement with the numerical derivative is even better. For the worst case, the total effect is larger than 100 fs/s and the agreement is within a few fs/s.

E. Validation of the Horizontal Ocean Loading Code

Validation was limited to unit testing at the University of Bonn, where the code was developed.

IV. PLANS FOR CALC

The following list of potential upgrades to CALC 7 is ordered from simple to difficult and from well understood to nebulous.

1. Complete the documentation cleanup. Upgrade the code to modern structured programming style throughout. Convert to FORTRAN-88 when it becomes available.
2. Implement an algorithm for relativistic bending caused by the mass of Jupiter for use in Jupiter grazing experiments.
3. Implement a harmonic model for solid Earth tides to estimate individual tidal components.
4. Implement geometric corrections due to the non-rigid structure of antennas.
5. Implement planetary nutation.
6. Implement a numerically integrated luni-solar nutation theory.

V. CREDITS

CALC 7 was brought to you by the following cast:

Jim Ryan provided overall project direction, implemented the Shapiro and Hellings algorithms, implemented the phase rate corrections in the feed rotation module, wrote the site-specific code in the ocean loading module, cleaned up the documentation, and did the validation testing.

Greg Cook of USNO did the initial programming to make CALC 7 out of CALC 6, and wrote the feed rotation module. He also made the changes to SKELETON, SETUP, and KBMSG to support CALC 7.

Lothar Mohlman under the guidance of Harold Schuh, both of the Bonn VLBI Group, developed the code for the horizontal ocean loading module.

Hans-Georg Schernick of Uppsala University computed site-specific phases and amplitudes for the ocean loading module.

Jim Ray provided the program PANGL that was used as the source of code for the feed rotation module and to generate validation data for CALC 7.

Tom Herring, Doug Robertson, Brent Archinal, Marshall Eubanks, and especially Chopo Ma provided useful discussions and insights.

VI REFERENCES

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1.0 STATIONS AND SITES

Table 1.1 describes the radio telescopes located at fixed stations. Each antenna has a unique name used throughout this report consisting of, at most, eight upper-case characters. The entries give the antenna diameter, location and operating institution. Table 1.2 has the latitude and longitude for each VLBI mobile site and fixed station, as well as the associated monument number. Each mobile site has a unique name of the same form as those of the stations. The monument number is followed by a single character. A "G" indicates a ground monument while an "A" indicates that the monument number refers to a point in the antenna (usually the intersection of axes). This character is followed by a three-letter code indicating on which tectonic plate the site was assumed to be for the solutions. The selection of tectonic plate was arbitrary in some cases but does not affect the total. The codes are as follows:

AFR -- African
EUR -- Eurasian
IND -- Indo-Australian
NOA -- North American
PCF -- Pacific

A nearby geographical location is given for each site for quick reference.

TABLE 1.1
VLBI OBSERVING STATIONS

ALGOPARK, 46-m-diameter antenna at the Algonquin Radio Observatory near Lake Traverse, Ontario, Canada.

CHLBOLTN, 26-m-diameter antenna located in Chilbolton, England and operated by the Appleton Laboratories. (No longer in use for VLBI.)

DSS15, 34-m-diameter antenna operated by the Deep Space Network in the Goldstone Tracking Complex near Barstow, California.

DSS45, 34-m-diameter antenna operated by the Deep Space Network in Tidbinbilla, Australia.

DSS65, 34-m-diameter antenna operated by the Deep Space Network in Madrid, Spain.

EFLSBERG, 100-m-diameter antenna of the Max Planck Institute for Radio Astronomy located near Effelsberg, Germany.

GILCREEK, 26-m-diameter antenna operated by the CDP and located at the NOAA/NESDIS facility at Gilmore Creek, Alaska, near Fairbanks.

GOLDVENU, 26-m-diameter antenna operated by the Deep Space Network in the Goldstone Tracking Complex near Barstow, California. Also called DSS13.

HARTRAO, 26-m-diameter antenna at the Hartebeesthoek Radio Astronomy Observatory near Johannesburg, South Africa.

HATCREEK, 26-m-diameter antenna at the Hat Creek Radio Observatory, Hat Creek, California.

HAYSTACK, 37-m-diameter antenna at the Haystack Observatory, Westford, Massachusetts.

HOBART26, 26-m-diameter antenna operated by the University of Tasmania at Hobart, Tasmania, Australia.

HRAS 085, 26-m-diameter antenna at the George R. Agassiz Station operated by the Harvard College Observatory and located near Fort Davis, Texas. (No longer in use for routine operations.)

KASHIMA, 26-m-diameter antenna at the Kashima Space Research Center, Kashima, Japan.

KAUAI, 9-m-diameter antenna operated by the CDP at the Kokee Park Geophysical Observatory on the island of Kauai in Hawaii. (Formerly part of NASA's Spaceflight Tracking and Data Network.)

KWAJAL26, 26-m-diameter TRADEX antenna operated for the U.S. Air Force by Lincoln Laboratory in the Marshall Islands.

MARPOINT, 26-m-diameter antenna of the U.S. Naval Research Laboratory located near Maryland Point, Maryland. (No longer in use for routine operations.)

MEDICINA, 32-m-diameter antenna operated by the University of Bologna, near Bologna, Italy.

MOJAVE12, 12-m-diameter antenna located at the NASA Goldstone complex near Barstow, California and operated by the NGS.

NOBEY 6M, 6-m-diameter antenna of the National Astronomy Observatory at Nobeyama, Japan.

NOTO, 32-m-diameter antenna operated by the University of Bologna at Noto, Sicily, Italy.

NRAO85 3, 26-m-diameter antenna at the National Radio Astronomy Observatory, Green Bank, West Virginia, operated for the U.S. Naval Observatory.

NRAO 140, 43-m-diameter antenna at the National Radio Astronomy Observatory, Green Bank, West Virginia.

ONSA60, 20-m-diameter antenna at the Onsala Space Observatory, Onsala, Sweden.

OVRO 130, 40-m-diameter antenna at the Owens Valley Radio Observatory, Big Pine, California.

PIETOWN, 25-m-diameter antenna of the VLBA near Pietown, New Mexico.

RICHMOND, 18-m-diameter antenna of the U.S. Naval Observatory near Miami, Florida.

ROBLED32, 32-m-diameter antenna located at the NASA Madrid complex in Spain and operated by the Deep Space Network.

SESHAN25, 25-m-diameter antenna of the Shanghai Astronomical Observatory near Shanghai, China.

SHANGHAI, 6-m-diameter antenna at the Shanghai Astronomical Observatory in Shanghai, China.

VNDNBERG, 9-m-diameter antenna operated by the CDP and located at the Vandenberg Air Force Base in California. (Ceased operations in the Summer of 1990.)

WESTFORD, 18-m-diameter antenna at the Haystack Observatory, Westford, Massachusetts.

WETTZELL, 20-m-diameter antenna located in Bavaria, Germany and operated by the German Institute for Applied Geodesy (IFAG).

TABLE 1.2
VLBI SITE LOCATIONS

Site Name	Monument	Plt	Location	Lat	Long
ALGOPARK	7282 A	NOA	Lake Traverse, Ont., Canada	45° 57'	281° 56'
AUSTINTX	7271 G	NOA	Austin, Texas	30° 20'	262° 18'
BERMUDA	7294 G	NOA	Bermuda Islands, U.K.	32° 22'	295° 20'
BLKBUTTE	7269 G	NOA	Black Butte, California	33° 40'	244° 17'
BLOOMIND	7291 G	NOA	Bloomington, Indiana	39° 11'	273° 30'
BREST	7604 G	EUR	Brest, France	48° 24'	355° 30'
CARNUSTY	7603 G	EUR	Carnoustie, Scotland	56° 29'	357° 13'
CARROLGA	7228 G	NOA	Carrolton, Georgia	33° 34'	274° 53'
CHLBOLTN	7215 A	EUR	Chilbolton, England	51° 08'	358° 34'
DEADMANL	7267 G	NOA	Deadman Lake, California	34° 15'	243° 43'
DSS15	7231 A	NOA	Barstow, California	35° 25'	243° 07'
DSS45	1642 A	IND	Tidbinbilla, Australia	-35° 24'	148° 59'
DSS65	1665 A	EUR	Madrid, Spain	40° 25'	355° 45'
EFLSBERG	7203 A	EUR	Effelsberg, Germany	50° 31'	6° 53'
ELY	7286 G	NOA	Ely, Nevada	39° 18'	245° 09'
FLAGSTAF	7261 G	NOA	Flagstaff, Arizona	35° 13'	248° 22'
FORTORD	7266 G	PCF	Sand City, California	36° 40'	238° 14'
FORTORDS	7241 G	PCF	Sand City, California	36° 35'	238° 14'
FTD7900	7900 G	NOA	Fort Davis, Texas	30° 38'	256° 03'
GILCREEK	7225 A	NOA	Fairbanks, Alaska	64° 59'	212° 30'
GOLDVENU	1513 A	NOA	Barstow, California	35° 15'	243° 12'
GORF7102	7102 G	NOA	Beltsville, Maryland	39° 01'	283° 10'
GRASSE	7605 G	EUR	Grasse, France	43° 45'	6° 55'
HAEAKAL	7210 G	PCF	LURE Obs., Maui, Hawaii	20° 43'	203° 45'
HARTRAO	7232 A	AFR	Johannesburg, South Africa	-25° 53'	27° 41'
HATCREEK	7218 A	NOA	HatCreek, California	40° 49'	238° 32'
HAYSTACK	7205 A	NOA	Westford, Massachusetts	42° 37'	288° 29'
HOBART26	7242 A	IND	Hobart, Tasmania, Australia	-42° 48'	147° 26'
HOHENFRG	7600 G	EUR	Hohenbuenstorf, Germany	53° 03'	10° 29'
HRAS085	7216 A	NOA	Fort Davis, Texas	30° 38'	256° 03'
JPLMV1	7263 G	PCF	Pasadena, California	34° 12'	241° 50'
KASHIMA	1856 A	NOA	Kashima, Japan	35° 57'	140° 40'
KAUAI	1311 A	PCF	Kokee Park, Kauai, Hawaii	22° 08'	200° 20'
KODIAK	7278 G	NOA	Kodiak, Alaska	57° 44'	207° 30'
KWAJAL26	4968 A	PCF	Roi-Namur, Marshall Islands	9° 23'	167° 29'
LEONRDOK	7292 G	NOA	Leonard, Oklahoma	35° 55'	264° 12'
MAMMOTHL	7259 G	NOA	Mammoth Lakes, California	37° 38'	241° 04'
MARPOINT	7217 A	NOA	Maryland Point, Maryland	38° 22'	282° 46'
MCD7850	7850 G	NOA	Fort Davis, Texas	30° 41'	255° 59'
MEDICINA	7230 A	EUR	Medicina, Italy	44° 31'	11° 39'
METSHOVI	7601 G	EUR	Metsahovi, Finland	60° 15'	24° 23'
MILESMON	7038 G	NOA	Miles City, Montana	46° 24'	254° 08'
MOJ7288	7288 G	NOA	Barstow, California	35° 20'	243° 07'
MOJAVE12	7222 A	NOA	Barstow, California	35° 20'	243° 07'
MON PEAK	7274 G	PCF	Monument Peak, California	32° 53'	243° 35'
NOBEY6M	7244 A	NOA	Nobeyama, Japan	35° 56'	138° 28'
NOME	7279 G	NOA	Nome, Alaska	64° 34'	194° 38'
NOTO	7547 A	EUR	Noto, Sicily, Italy	36° 53'	14° 59'
NRA0140	7204 A	NOA	Green Bank, West Virginia	38° 26'	280° 09'
NRA0853	7214 A	NOA	Green Bank, West Virginia	38° 26'	280° 09'
OCOTILLO	7270 G	NOA	Ocotillo, California	32° 47'	244° 12'
ONSALA60	7213 A	EUR	Onsala, Sweden	57° 24'	11° 56'
OVR7853	7853 G	NOA	Big Pine, California	37° 14'	241° 42'
OVR0130	7207 A	NOA	Big Pine, California	37° 13'	241° 43'

PELOSSOM	7254 G	PCF	Pearblossom, California	34°	31'	242°	05'
PENTICTN	7283 G	NOA	Penticton, B.C., Canada	49°	19'	240°	23'
PIETOWN	7234 A	NOA	Pie Town, New Mexico	34°	18'	251°	53'
PINFLATS	7256 G	NOA	Pinyon Flats, California	33°	37'	243°	33'
PLATTVIL	7258 G	NOA	Platteville, Colorado	40°	11'	255°	16'
PRESIDIO	7252 G	PCF	San Francisco, California	37°	48'	237°	33'
PT REYES	7251 G	PCF	Point Reyes, California	38°	06'	237°	04'
PVERDES	7268 G	PCF	Palos Verdes, California	33°	45'	241°	36'
QUINCY	7221 G	NOA	Quincy, California	39°	58'	239°	04'
RICHMOND	7219 A	NOA	Miami, Florida	25°	36'	279°	37'
ROLED32	1561 A	EUR	Madrid, Spain	40°	25'	355°	45'
SANPAULA	7255 G	PCF	Santa Paula, California	34°	23'	241°	00'
SEATTLE1	7229 G	NOA	Seattle, Washington	47°	41'	237°	45'
SESHAN25	7227 A	EUR	Shanghai, China	31°	06'	121°	12'
SHANGHAI	7226 A	EUR	Shanghai, China	31°	11'	121°	26'
SNDPOINT	7280 G	NOA	Sand Point, Alaska	55°	21'	199°	31'
SOURDOGH	7281 G	NOA	Sourdough, Alaska	62°	40'	214°	31'
TROMSONO	7602 G	EUR	Tromso, Norway	69°	40'	18°	56'
VERNAL	7290 G	NOA	Vernal, Utah	40°	20'	250°	26'
VNDNBERG	7223 G	PCF	Vandenberg AFB, California	34°	34'	239°	30'
WESTFORD	7209 A	NOA	Westford, Massachusetts	42°	37'	288°	30'
WETTZELL	7224 A	EUR	Wettzell, Bavaria, Germany	49°	09'	12°	53'
WHITEHORSE	7284 G	NOA	Whitehorse, Yuk. Ter., Canada	60°	43'	224°	55'
YAKATAGA	7277 G	NOA	Cape Yakataga, Alaska	60°	05'	217°	31'
YELLOWKN	7285 G	NOA	Yellowknife, NW Ter., Canada	62°	29'	245°	32'
YUMA	7894 G	NOA	Yuma, Arizona	32°	56'	245°	48'

2.0 SUMMARY OF EXPERIMENTS BY DATABASE AND SITE

Table 2.1 is a summary of the observing sessions. Each line corresponds to one observing session and contains the database name of the session and an 'X' to indicate which stations and/or sites participated. The final character in each database name does not necessarily indicate the type of experiment. The experiment types are identified in Section 9 of the machine-readable version.

TABLE 2.1

EXPERIMENT
NAME

TABLE 2.1 (continued)

EXPERIMENT NAME	RTATN	TGTN	G	FDSOKU2	L	KK6G5	6KLT0A	AIN82KM	20HNSN	V081A6	4	L6S30T	NIIES	N3LE2A	ANGN	RRLSGK
\$81OCT15X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81OCT21XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81OCT28X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81NOV04XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81NOV10X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81NOV18X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81NOV19X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81NOV24XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81DEC02XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81DEC16X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81DEC22X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$81DEC29XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JAN05X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JAN13X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JAN20X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JAN27X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82FEB01X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82FEB10X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82FEB17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82FEB24X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAR03X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAR10X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAR17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAR24X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAR29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82APR07X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82APR13X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82APR19XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82APR26X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAY03X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAY10XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82MAY17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN02X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN07X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN16X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN18X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN19XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN20XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN21X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUN28X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUL06XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUL12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUL19X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82JUL26X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82AUG04X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82AUG09X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82AUG16X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82AUG23X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$82AUG30X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 2.1 (continued)

TABLE 2.1 (continued)

EXPERIMENT NAME	RT	ATN	TG	IN	YANL	KX	ED	YANL	G	FDS	OKU2	L	KK6G5	R81A	20HN5	NV081A6	4	L6530	TN	II	IES	D2A151	THO	GD	LEAN
\$83JUN13X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUN20X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUN27XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUN28XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUN29A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUL05X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUL11X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83JUL25X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG01X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG08X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG15X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG22XP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG22AJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG23X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG25XJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG27X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83AUG31X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP02X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP07X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP22X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP23XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83SEP27X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT02X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT07X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT22X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT27X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT28X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83OCT31X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV01X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV05X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV06X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV08X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV10X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV11X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV16X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV21X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83NOV26X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83DEC01X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$83DEC06X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

EXPERIMENT NAME	RTATN	TGTM	ARDEN0	AOEC2R81A	20HM5NV081A6	4L6530TNTIIES	N3LE2ANGN	RRLSGK	GDLEAN
\$84MAY18X	-	-	-	-	-	-	-	-	-
\$84MAY19X	-	-	-	-	-	-	-	-	-
\$84MAY23X	-	-	-	-	-	-	-	-	-
\$84MAY28X	-	-	-	-	-	-	-	-	-
\$84JUN02X	-	-	-	-	-	-	-	-	-
\$84JUN07X	-	-	-	-	-	-	-	-	-
\$84JUN12X1	-	-	-	-	-	-	-	-	-
\$84JUN17X	-	-	-	-	-	-	-	-	-
\$84JUN22X1	-	-	-	-	-	-	-	-	-
\$84JUN27X1	-	-	-	-	-	-	-	-	-
\$84JUL02X1	-	-	-	-	-	-	-	-	-
\$84JUL07X	-	-	-	-	-	-	-	-	-
\$84JUL07X1	-	-	-	-	-	-	-	-	-
\$84JUL12X1	-	-	-	-	-	-	-	-	-
\$84JUL14X	-	-	-	-	-	-	-	-	-
\$84JUL17X1	-	-	-	-	-	-	-	-	-
\$84JUL21X	-	-	-	-	-	-	-	-	-
\$84JUL22X	-	-	-	-	-	-	-	-	-
\$84JUL22XA	-	-	-	-	-	-	-	-	-
\$84JUL23X	-	-	-	-	-	-	-	-	-
\$84JUL27X1	-	-	-	-	-	-	-	-	-
\$84JUL28X	-	-	-	-	-	-	-	-	-
\$84JUL29X	-	-	-	-	-	-	-	-	-
\$84JUL31X	-	-	-	-	-	-	-	-	-
\$84AUG01X	-	-	-	-	-	-	-	-	-
\$84AUG04X	-	-	-	-	-	-	-	-	-
\$84AUG05X	-	-	-	-	-	-	-	-	-
\$84AUG06X	-	-	-	-	-	-	-	-	-
\$84AUG07X	-	-	-	-	-	-	-	-	-
\$84AUG11X	-	-	-	-	-	-	-	-	-
\$84AUG16X	-	-	-	-	-	-	-	-	-
\$84AUG21X	-	-	-	-	-	-	-	-	-
\$84AUG24X	-	-	-	-	-	-	-	-	-
\$84AUG26X1	-	-	-	-	-	-	-	-	-
\$84AUG28X	-	-	-	-	-	-	-	-	-
\$84AUG30X	-	-	-	-	-	-	-	-	-
\$84AUG31X1	-	-	-	-	-	-	-	-	-
\$84SEP02X	-	-	-	-	-	-	-	-	-
\$84SEP05X1	-	-	-	-	-	-	-	-	-
\$84SEP10X1	-	-	-	-	-	-	-	-	-
\$84SEP15X1	-	-	-	-	-	-	-	-	-
\$84SEP20X1	-	-	-	-	-	-	-	-	-
\$84SEP25X1	-	-	-	-	-	-	-	-	-
\$84SEP30X1	-	-	-	-	-	-	-	-	-
\$84OCT05X1	-	-	-	-	-	-	-	-	-
\$84OCT10X1	-	-	-	-	-	-	-	-	-
\$84OCT15X1	-	-	-	-	-	-	-	-	-
\$84OCT20X1	-	-	-	-	-	-	-	-	-
\$84OCT22X	-	-	-	-	-	-	-	-	-

TABLE 2.1 (continued)

EXPERIMENT NAME	RTATN	TGTN	G	FDSOKU2	L	KK6G5	6KLT0A	IN82KH	030030	MN	SLOS	D2A151	THO	GDLEAN
\$84OCT25B	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84OCT25X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84OCT26X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84OCT28X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84OCT30X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84OCT31X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV04X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV09X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV14X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV15X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV19X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV24X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84NOV29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC04X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC09X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC14X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC19X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC23X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$84DEC29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN03X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN08X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN09X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN13X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN15X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN18XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN18X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN23X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN24X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85JAN28XA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB02X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB07XB	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB12X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB17X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB22X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85FEB27X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR01X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR05X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR07X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR09X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR10X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR13XR	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR14X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR19X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR24X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85MAR29X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$85APR03X	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

[illegible]

2-16

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

[illegible]

TABLE 2.1 (continued)

[illegible]

TABLE 2.1 (continued)

[illegible]

3.0 SOURCE COORDINATES

Table 3.1 gives the estimated positions of the observed extragalactic radio sources. One-sigma standard statistical errors are given in units of seconds of time for right ascension and arcseconds for declination. The right ascension of 3C273B was fixed at the indicated value in order to establish the right ascension origin in the celestial reference frame.

TABLE 3.1
SOURCE COORDINATES FROM GLB658 SOLUTION

SOURCE	RIGHT ASCENSION				DECLINATION			
	HR	MIN	SEC	ERROR	DEG	MIN	SEC	ERROR
0016+731	0	19	45.7859910	.0000375	73	27	30.01559	.00076
0048-097	0	50	41.3173723	.0000069	-9	29	5.21108	.00016
0106+013	1	8	38.7710359	.0000023	1	35	.31603	.00013
0119+041	1	21	56.8616489	.0000126	4	22	24.73378	.00018
0208-512	2	10	46.2008657	.0003107	-51	1	1.89412	.00252
0212+735	2	17	30.8127314	.0000260	73	49	32.62066	.00012
4C67.05	2	28	50.0510426	.0000238	67	21	3.02826	.00017
0229+131	2	31	45.8939799	.0000029	13	22	54.71581	.00012
0234+285	2	37	52.4055494	.0000049	28	48	8.98935	.00012
0235+164	2	38	38.9300152	.0000075	16	36	59.27383	.00033
0300+470	3	3	35.2419967	.0000091	47	16	16.27501	.00012
3C84	3	19	48.1599022	.0000126	41	30	42.10387	.00019
NRA0150	3	59	29.7469969	.0000104	50	57	50.16180	.00012
0420-014	4	23	15.8006718	.0000022	-1	20	33.06395	.00014
3C120	4	33	11.0954368	.0000289	5	21	15.61965	.00158
0454-234	4	57	3.1792444	.0000102	-23	24	52.01771	.00019
0528+134	5	30	56.4166744	.0000027	13	31	55.15128	.00012
0537-441	5	38	50.3618005	.0003494	-44	5	8.93814	.00288
0552+398	5	55	30.8054351	.0000066	39	48	49.16660	.00012
0727-115	7	30	19.1124427	.0000037	-11	41	12.59723	.00014
0742+103	7	45	33.0594667	.0000045	10	11	12.69582	.00020
0814+425	8	18	15.9995542	.0000334	42	22	45.41785	.00034
0820+560	8	24	47.2361286	.0000521	55	52	42.67255	.00037
0823+033	8	25	50.3382931	.0000092	3	9	24.52396	.00037
OJ287	8	54	48.8748676	.0000030	20	6	30.64399	.00012
4C39.25	9	27	3.0138251	.0000063	39	2	20.85499	.00011
OK290	9	56	49.8753767	.0000165	25	15	16.05187	.00057
0954+658	9	58	47.2450825	.0000259	65	33	54.82151	.00018
1034-293	10	37	16.0796877	.0000109	-29	34	2.80952	.00019
1055+018	10	58	29.6051721	.0000022	1	33	58.82753	.00015
1144+402	11	46	58.2979549	.0000071	39	58	34.30722	.00013
1150+812	11	53	12.4997391	.0001355	80	58	29.15681	.00038
1156+295	11	59	31.8339305	.0000055	29	14	43.82956	.00013
1219+285	12	21	31.6905797	.0000170	28	13	58.50329	.00062
3C273B	12	29	6.6997	.0000000	2	3	8.60134	.00013
3C279	12	56	11.1664485	.0000056	-5	47	21.52246	.00022
1308+326	13	10	28.6639277	.0000052	32	20	43.78504	.00012
1334-127	13	37	39.7827109	.0000056	-12	57	24.69079	.00017
1354+195	13	57	4.4366952	.0000064	19	19	7.37393	.00015
OQ208	14	7	.3944729	.0000040	28	27	14.69139	.00012
1418+546	14	19	46.5976304	.0000180	54	23	14.78849	.00018
1424-418	14	27	56.2973596	.0001551	-42	6	19.43533	.00103

SOURCE	RIGHT ASCENSION				DECLINATION			
	HR	MIN	SEC	ERROR	DEG	MIN	SEC	ERROR
1502+106	15	4	24.9798092	.0000032	10	29	39.19997	.00014
1548+056	15	50	35.2692362	.0000026	5	27	10.44920	.00014
CTD93	16	9	13.3212530	.0011084	26	41	28.99528	.03127
1611+343	16	13	41.0643518	.0000107	34	12	47.90909	.00016
1622-253	16	25	46.8915229	.0000216	-25	27	38.32638	.00031
1633+38	16	35	15.4930797	.0000060	38	8	4.50033	.00012
1637+574	16	38	13.4565656	.0000123	57	20	23.97867	.00013
1642+690	16	42	7.8489494	.0000236	68	56	39.75588	.00015
3C345	16	42	58.8100790	.0000063	39	48	36.99362	.00012
NRAO530	17	33	2.7057044	.0000044	-13	4	49.54814	.00015
1739+522	17	40	36.9780326	.0000116	52	11	43.40650	.00013
1741-038	17	43	58.8560995	.0000022	-3	50	4.61699	.00014
1749+701	17	48	32.8406215	.0001673	70	5	50.76684	.00076
1749+096	17	51	32.8185780	.0000032	9	39	.72788	.00013
1803+784	18	0	45.6846488	.0000367	78	28	4.01709	.00011
3C390.3	18	42	8.9904721	.0003649	79	46	17.12653	.00088
1921-293	19	24	51.0558559	.0000068	-29	14	30.12143	.00018
1923+210	19	25	59.6053871	.0000278	21	6	26.15931	.00109
1928+738	19	27	48.4952854	.0000923	73	58	1.56731	.00067
1958-179	20	0	57.0903597	.0000155	-17	48	57.67334	.00023
3C418	20	38	37.0348242	.0000116	51	19	12.66038	.00013
2113+293	21	15	29.4134478	.0000108	29	33	38.36443	.00029
2121+053	21	23	44.5173534	.0000025	5	35	22.09112	.00013
2128-123	21	31	35.2616250	.0000216	-12	7	4.79798	.00031
2134+00	21	36	38.5862795	.0000025	0	41	54.21196	.00014
2145+067	21	48	5.4586392	.0000030	6	57	38.60206	.00013
2155-152	21	58	6.2817474	.0000283	-15	1	9.33061	.00050
VR422201	22	2	43.2913480	.0000075	42	16	39.97732	.00011
2201+315	22	3	14.9757882	.0000241	31	45	38.26801	.00060
2216-038	22	18	52.0376963	.0000028	-3	35	36.88146	.00014
2234+282	22	36	22.4708130	.0000054	28	28	57.41089	.00012
3C454.3	22	53	57.7478906	.0000033	16	8	53.55858	.00012
2255-282	22	58	5.9628987	.0000274	-27	58	21.25746	.00026
2345-167	23	48	2.6084947	.0000103	-16	31	12.02311	.00018

4.0 SITE POSITIONS AND VELOCITIES FROM SOLUTION GLB659

Table 4.1 gives geocentric Cartesian positions, velocities, one-sigma errors, and their correlations (in lower triangular form) for each site in the VLBI reference frame at the site reference epoch January 1, 1988. For selected sites, velocity constraints were applied; this caused the corresponding velocity errors for these sites to be zero. (See the discussion in the main text.) The VLBI reference frame is also described in the text.

Table 4.2 gives total site velocities and one-sigma errors in local east, north, and up coordinates as well as the corresponding horizontal rates and azimuths for each site from GLB659. These velocities, rates, and azimuths are also given as corrections relative to AMO-2. The length, azimuth, and elevation for each axis of the velocity error ellipsoid are given in the last column. As in Table 4.1 the sigmas and error ellipsoid parameters for selected sites where velocity constraints were applied are zero.

Table 4.3 is the correlation matrix of all Cartesian site positions and velocities for GLB659. This table consists of two parts. The upper part shows the numbers from 1 through 477 which are associated with each component or velocity, the name of the component or velocity, and its sigma. The lower part of the table is the actual correlation matrix in lower triangular form. The rows of the matrix wrap around every 20th element. Table 4.3 is found only in the machine-readable version.

The position for YAKATAGA is an extrapolation based on the linear motion observed through the 1987 Alaska mobile campaign. Later data obtained at YAKATAGA were not used to compute either position or velocities at YAKATAGA due to discontinuous motion associated with a series of earthquakes in the Gulf of Alaska during the winter of 1987-1988. Similarly, data obtained at FORTORDS, PRESIDIO, and PT REYES after the October 1989 Loma Prieta earthquake were not used to estimate velocities at these sites.

TABLE 4.1 GEOCENTRIC CARTESIAN SITE COORDINATES AND VELOCITIES

ALGOPARK	7282	Reference Epoch = 88/1/1	Correlation Matrix:						
X	918034969.5	mm	8.2	mm	1.000				
Y	-4346132238.4	mm	32.2	mm	-.172	1.000			
Z	4561971041.4	mm	30.6	mm	.126	-.911	1.000		
X vel	-17.2	mm/yr	2.9	mm/yr	.984	-.162	.119	1.000	
Y vel	-10.1	mm/yr	11.4	mm/yr	-.164	.984	-.898	-.161	1.000
Z vel	7.2	mm/yr	10.9	mm/yr	.119	-.893	.984	.117	-.909
					X	Y	Z	X vel	Y vel
									Z vel

AUSTINTX	7271	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-737793671.2	mm	3.6	mm	1.000				
Y	-5459892256.8	mm	16.0	mm	.699	1.000			
Z	3202990387.5	mm	9.4	mm	-.631	-.898	1.000		
X vel	-14.1	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	-1.7	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	-6.1	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

BERMUDA	7294	Reference Epoch = 88/1/1	Correlation Matrix:						
X	2307209614.5	mm	4.6	mm	1.000				
Y	-4874215796.9	mm	9.9	mm	-.873	1.000			
Z	3394317753.9	mm	6.6	mm	.774	-.877	1.000		
X vel	-14.7	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	-2.5	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	6.4	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

BLKBUTTE	7269	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-2306306818.5	mm	5.0	mm	1.000				
Y	-4787914426.6	mm	10.2	mm	.951	1.000			
Z	3515736348.1	mm	7.3	mm	-.913	-.933	1.000		
X vel	-16.2	mm/yr	3.4	mm/yr	.555	.540	-.511	1.000	
Y vel	11.7	mm/yr	7.1	mm/yr	.532	.569	-.523	.956	1.000
Z vel	-14.8	mm/yr	5.0	mm/yr	-.509	-.530	.543	-.937	-.953
					X	Y	Z	X vel	Y vel
									Z vel

BLOOMIND	7291	Reference Epoch = 88/1/1	Correlation Matrix:						
X	302384585.6	mm	10.2	mm	1.000				
Y	-4941699022.4	mm	34.7	mm	.052	1.000			
Z	4007908372.7	mm	28.9	mm	-.150	-.919	1.000		
X vel	-17.2	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	-2.4	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	-1.6	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

BREST	7604	Reference Epoch = 88/1/1	Correlation Matrix:						
X	4228877257.8	mm	8.8	mm	1.000				
Y	-333104306.1	mm	2.9	mm	-.336	1.000			
Z	4747180794.8	mm	10.2	mm	.843	-.296	1.000		
X vel	-12.0	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	17.0	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	11.9	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

CARNUSTY	7603	Reference Epoch = 88/1/1	Correlation Matrix:						
X	3526416535.0	mm	10.4	mm	1.000				
Y	-171421224.0	mm	3.8	mm	-.098	1.000			
Z	5294098668.1	mm	14.4	mm	.876	-.076	1.000		
X vel	-14.1	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	14.9	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	9.9	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

CARROLGA	7228	Reference Epoch = 88/1/1	Correlation Matrix:						
X	453520758.5	mm	9.3	mm	1.000				
Y	-5300506746.5	mm	35.3	mm	-.432	1.000			
Z	3507207321.6	mm	21.6	mm	.508	-.916	1.000		
X vel	-15.3	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	-2.1	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	-1.3	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

CHLBOLTN	7215	Reference Epoch = 88/1/1	Correlation Matrix:						
X	4008310236.6	mm	9.6	mm	1.000				
Y	-100650868.1	mm	5.5	mm	-.679	1.000			
Z	4943794581.5	mm	12.4	mm	.644	-.523	1.000		
X vel	-13.3	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	16.4	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	11.2	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
									Z vel

TABLE 4.1 (continued)

DEADMANL	7267	Reference Epoch = 88/1/1	Correlation Matrix:
X	-2336819530.2 mm	7.3 mm	1.000
Y	-4732586979.1 mm	13.7 mm	.921 1.000
Z	3570329923.4 mm	10.1 mm	-.862 -.896 1.000
X vel	-46.1 mm/yr	9.9 mm/yr	.439 .407 -.372 1.000
Y vel	-48.5 mm/yr	19.2 mm/yr	-.395 .421 -.376 .948 1.000
Z vel	30.9 mm/yr	13.3 mm/yr	-.381 -.397 .417 -.902 -.943 1.000
		X Y Z	X vel Y vel Z vel
DSS15	7231	Reference Epoch = 88/1/1	Correlation Matrix:
X	-2353538623.4 mm	4.4 mm	1.000
Y	-4641649527.5 mm	8.8 mm	.898 1.000
Z	3676669943.1 mm	7.5 mm	-.746 -.860 1.000
X vel	-15.8 mm/yr	.0 mm/yr	.000 .000 .000 1.000
Y vel	-1.5 mm/yr	.0 mm/yr	.000 .000 .000 .000 1.000
Z vel	-12.1 mm/yr	.0 mm/yr	.000 .000 .000 .000 .000 1.000
		X Y Z	X vel Y vel Z vel
DSS45	1642	Reference Epoch = 88/1/1	Correlation Matrix:
X	-4460935054.6 mm	19.5 mm	1.000
Y	2682765789.1 mm	13.0 mm	-.435 1.000
Z	-3674381636.9 mm	11.7 mm	.314 -.168 1.000
X vel	-41.0 mm/yr	12.4 mm/yr	-.829 .435 -.386 1.000
Y vel	6.0 mm/yr	8.5 mm/yr	.438 -.704 .319 -.506 1.000
Z vel	52.6 mm/yr	7.5 mm/yr	-.362 .322 -.707 .388 -.182 1.000
		X Y Z	X vel Y vel Z vel
DSS65	1665	Reference Epoch = 88/1/1	Correlation Matrix:
X	4849336782.3 mm	12.6 mm	1.000
Y	-360488920.5 mm	4.9 mm	-.379 1.000
Z	4114748536.8 mm	13.2 mm	.854 -.442 1.000
X vel	20.1 mm/yr	11.4 mm/yr	-.965 .317 -.819 1.000
Y vel	13.9 mm/yr	4.3 mm/yr	.328 -.904 .402 -.343 1.000
Z vel	60.2 mm/yr	11.8 mm/yr	-.837 .411 -.942 .854 -.423 1.000
		X Y Z	X vel Y vel Z vel
EFLSBERG	7203	Reference Epoch = 88/1/1	Correlation Matrix:
X	4033947672.7 mm	34.0 mm	1.000
Y	486990384.1 mm	15.5 mm	-.122 1.000
Z	4900430618.6 mm	44.2 mm	.932 -.211 1.000
X vel	-12.7 mm/yr	5.0 mm/yr	.966 -.132 .901 1.000
Y vel	13.4 mm/yr	2.4 mm/yr	-.123 .945 -.205 -.189 1.000
Z vel	13.2 mm/yr	6.6 mm/yr	-.889 -.218 .964 .895 -.251 1.000
		X Y Z	X vel Y vel Z vel
ELY	7286	Reference Epoch = 88/1/1	Correlation Matrix:
X	-2077236171.9 mm	3.1 mm	1.000
Y	-4486712713.8 mm	6.7 mm	.909 1.000
Z	4018753677.1 mm	5.7 mm	-.865 -.912 1.000
X vel	-19.6 mm/yr	2.4 mm/yr	-.079 -.099 .109 1.000
Y vel	1.6 mm/yr	5.1 mm/yr	-.096 -.089 .102 .936 1.000
Z vel	-12.1 mm/yr	4.2 mm/yr	.107 .103 -.102 -.917 -.950 1.000
		X Y Z	X vel Y vel Z vel
FLAGSTAF	7261	Reference Epoch = 88/1/1	Correlation Matrix:
X	-1923992544.4 mm	6.1 mm	1.000
Y	-4850854535.9 mm	14.4 mm	.923 1.000
Z	3658589239.9 mm	10.5 mm	-.868 -.924 1.000
X vel	-23.6 mm/yr	3.6 mm/yr	.654 .608 -.575 1.000
Y vel	-18.9 mm/yr	8.9 mm/yr	.590 .643 -.599 .938 1.000
Z vel	5.0 mm/yr	6.5 mm/yr	-.555 -.595 .641 -.906 -.948 1.000
		X Y Z	X vel Y vel Z vel
FORT ORD	7266	Reference Epoch = 88/1/1	Correlation Matrix:
X	-2697026634.8 mm	5.8 mm	1.000
Y	-4354393321.2 mm	9.3 mm	.951 1.000
Z	3788077541.5 mm	8.0 mm	-.907 -.929 1.000
X vel	-31.7 mm/yr	3.4 mm/yr	.560 .536 -.508 1.000
Y vel	28.9 mm/yr	5.5 mm/yr	.530 .558 -.516 .955 1.000
Z vel	20.8 mm/yr	4.7 mm/yr	-.505 -.519 .542 -.938 -.951 1.000
		X Y Z	X vel Y vel Z vel
FORTORDS	7241	Reference Epoch = 88/1/1	Correlation Matrix:
X	-2699840056.9 mm	35.6 mm	1.000
Y	-4359127006.7 mm	56.2 mm	.966 1.000
Z	3781050825.0 mm	44.8 mm	-.932 -.950 1.000
X vel	-92.9 mm/yr	31.8 mm/yr	-.984 -.952 .921 1.000
Y vel	-48.3 mm/yr	50.4 mm/yr	-.948 -.983 .938 .966 1.000
Z vel	80.7 mm/yr	40.4 mm/yr	.912 .933 -.983 -.932 -.952 1.000
		X Y Z	X vel Y vel Z vel

TABLE 4.1 (continued)

FTD 7900	7900	Reference Epoch = 88/1/1	Correlation Matrix:							
X	-1324227805.3 mm	3.6 mm	1.000							
Y	-5332063020.9 mm	12.8 mm	.757	1.000						
Z	3232022955.7 mm	7.6 mm	-.736	-.866	1.000					
X vel	-14.2 mm/yr	.0 mm/yr	.000	.000	.000	1.000				
Y vel	-1.5 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000			
Z vel	-8.4 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
GILCREEK	7225	Reference Epoch = 88/1/1	Correlation Matrix:							
X	-2281547029.5 mm	1.1 mm	1.000							
Y	-1453645049.1 mm	1.7 mm	.589	1.000						
Z	5756993168.4 mm	2.3 mm	-.254	-.647	1.000					
X vel	-25.7 mm/yr	.7 mm/yr	.241	.208	-.022	1.000				
Y vel	-4.4 mm/yr	1.0 mm/yr	.205	.352	-.244	.535	1.000			
Z vel	-5.3 mm/yr	1.4 mm/yr	-.036	-.224	.288	-.333	-.765	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
GOLDVENU	1513	Reference Epoch = 88/1/1	Correlation Matrix:							
X	-2351128994.8 mm	2.7 mm	1.000							
Y	-4655477083.4 mm	5.3 mm	.852	1.000						
Z	3660956843.2 mm	4.7 mm	-.799	-.862	1.000					
X vel	-17.8 mm/yr	.8 mm/yr	.676	.606	-.550	1.000				
Y vel	4.2 mm/yr	1.8 mm/yr	.571	.689	-.577	.773	1.000			
Z vel	-6.1 mm/yr	1.5 mm/yr	-.538	-.603	.632	-.759	-.889	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
GORF7102	7102	Reference Epoch = 88/1/1	Correlation Matrix:							
X	1130686717.2 mm	2.9 mm	1.000							
Y	-4831353005.8 mm	10.2 mm	-.747	1.000						
Z	3994110790.1 mm	8.5 mm	.714	-.943	1.000					
X vel	-17.1 mm/yr	.0 mm/yr	.000	.000	.000	1.000				
Y vel	-2.6 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000			
Z vel	1.7 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
GRASSE	7605	Reference Epoch = 88/1/1	Correlation Matrix:							
X	4581697818.8 mm	6.7 mm	1.000							
Y	556125626.5 mm	2.6 mm	-.118	1.000						
Z	4389351246.9 mm	7.5 mm	.710	-.004	1.000					
X vel	-14.1 mm/yr	.0 mm/yr	.000	.000	.000	1.000				
Y vel	18.0 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000			
Z vel	12.4 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
HALEAKAL	7120	Reference Epoch = 88/1/1	Correlation Matrix:							
X	-5465998392.4 mm	14.1 mm	1.000							
Y	-2404408566.6 mm	7.4 mm	.877	1.000						
Z	2242228409.9 mm	7.1 mm	-.798	-.731	1.000					
X vel	-15.3 mm/yr	.0 mm/yr	.000	.000	.000	1.000				
Y vel	67.3 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000			
Z vel	34.9 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
HARTRAO	7232	Reference Epoch = 88/1/1	Correlation Matrix:							
X	5085442763.9 mm	11.1 mm	1.000							
Y	2668263418.5 mm	7.4 mm	.100	1.000						
Z	-2768697284.7 mm	6.7 mm	.216	.427	1.000					
X vel	-16.2 mm/yr	8.4 mm/yr	.154	.057	-.021	1.000				
Y vel	21.8 mm/yr	5.2 mm/yr	.070	.232	.049	.203	1.000			
Z vel	14.6 mm/yr	3.9 mm/yr	-.048	.053	.209	.129	.280	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
HATCREEK	7218	Reference Epoch = 88/1/1	Correlation Matrix:							
X	-2523969798.4 mm	1.0 mm	1.000							
Y	-4123506360.7 mm	1.9 mm	.657	1.000						
Z	4147752529.5 mm	2.1 mm	-.608	-.687	1.000					
X vel	-21.3 mm/yr	.5 mm/yr	.152	.127	-.066	1.000				
Y vel	5.0 mm/yr	1.2 mm/yr	.114	.269	-.121	.674	1.000			
Z vel	-7.5 mm/yr	1.1 mm/yr	-.080	-.166	.133	-.675	-.861	1.000		
			X	Y	Z	X vel	Y vel	Z vel		
HAYSTACK	7205	Reference Epoch = 88/1/1	Correlation Matrix:							
X	1492404951.2 mm	1.4 mm	1.000							
Y	-4457266491.3 mm	3.6 mm	-.407	1.000						
Z	4296881618.8 mm	3.7 mm	.403	-.759	1.000					
X vel	-16.9 mm/yr	.3 mm/yr	.836	-.325	.304	1.000				
Y vel	-4.8 mm/yr	.8 mm/yr	-.326	.849	-.638	-.401	1.000			
Z vel	4.6 mm/yr	.8 mm/yr	.313	-.646	.856	.350	-.755	1.000		
			X	Y	Z	X vel	Y vel	Z vel		

TABLE 4.1 (continued)

HOBART26 7242 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-3950236387.4 mm	13.7 mm		1.000						
Y	2522347596.2 mm	12.8 mm		-.229	1.000					
Z	-4311562936.4 mm	11.4 mm		.094	.325	1.000				
X vel	-37.8 mm/yr	.0 mm/yr		.000	.000	.000	1.000			
Y vel	6.7 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000		
Z vel	38.5 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
HOHENFRG 7600 Reference Epoch = 88/1/1				Correlation Matrix:						
X	3778215040.7 mm	5.7 mm		1.000						
Y	698644654.1 mm	2.3 mm		-.026	1.000					
Z	5074053419.3 mm	7.7 mm		.732	.064	1.000				
X vel	-16.4 mm/yr	.0 mm/yr		.000	.000	.000	1.000			
Y vel	15.7 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000		
Z vel	10.1 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
HRAS 085 7216 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-1324210820.0 mm	.5 mm		1.000						
Y	-5332023122.8 mm	1.4 mm		.143	1.000					
Z	3232118296.4 mm	1.6 mm		-.574	-.643	1.000				
X vel	-13.6 mm/yr	.2 mm/yr		.165	-.071	-.003	1.000			
Y vel	2.9 mm/yr	.8 mm/yr		-.078	.302	-.128	.034	1.000		
Z vel	-9.6 mm/yr	.6 mm/yr		.042	-.230	.138	-.189	-.890	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
JPL MV1 7263 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-2493305856.9 mm	4.8 mm		1.000						
Y	-4655197600.9 mm	8.7 mm		.952	1.000					
Z	3565519266.6 mm	6.6 mm		-.909	-.929	1.000				
X vel	-34.6 mm/yr	2.2 mm/yr		.635	.605	-.575	1.000			
Y vel	19.0 mm/yr	4.1 mm/yr		.593	.619	-.574	.949	1.000		
Z vel	7.2 mm/yr	3.1 mm/yr		-.576	-.586	.604	-.931	-.954	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
KASHIMA 1856 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-3997892215.5 mm	3.2 mm		1.000						
Y	3276581258.1 mm	2.1 mm		.315	1.000					
Z	3724118327.7 mm	4.7 mm		-.492	.031	1.000				
X vel	1.2 mm/yr	1.8 mm/yr		.436	.318	-.133	1.000			
Y vel	2.2 mm/yr	1.1 mm/yr		.291	.400	.026	.286	1.000		
Z vel	-9.3 mm/yr	3.0 mm/yr		-.117	.030	.444	-.369	.140	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
KAUAI 1311 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-5543845920.0 mm	2.4 mm		1.000						
Y	-2054564180.1 mm	2.5 mm		.515	1.000					
Z	2387813778.5 mm	3.3 mm		-.686	-.365	1.000				
X vel	-10.4 mm/yr	.5 mm/yr		-.132	-.283	.208	1.000			
Y vel	64.5 mm/yr	1.2 mm/yr		.150	.481	-.028	-.524	1.000		
Z vel	31.4 mm/yr	1.0 mm/yr		.013	.191	.189	.512	.463	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
KODIAK 7278 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-3026940039.8 mm	5.2 mm		1.000						
Y	-1575911803.2 mm	3.3 mm		.828	1.000					
Z	5370362453.4 mm	8.9 mm		-.922	-.834	1.000				
X vel	-25.6 mm/yr	4.9 mm/yr		-.128	-.084	.139	1.000			
Y vel	5.3 mm/yr	2.9 mm/yr		-.096	-.008	.088	.884	1.000		
Z vel	4.8 mm/yr	8.3 mm/yr		.139	.080	-.134	-.956	-.893	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
KWAJAL26 4968 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-6143536436.4 mm	10.3 mm		1.000						
Y	1363997210.2 mm	4.0 mm		-.328	1.000					
Z	1034707410.9 mm	5.5 mm		-.537	.189	1.000				
X vel	27.6 mm/yr	4.9 mm/yr		.688	-.268	-.300	1.000			
Y vel	69.2 mm/yr	2.1 mm/yr		-.225	.624	.180	-.291	1.000		
Z vel	26.2 mm/yr	3.0 mm/yr		-.242	.226	.444	-.479	.418	1.000	
				X	Y	Z	X vel	Y vel	Z vel	
LEONRDOK 7292 Reference Epoch = 88/1/1				Correlation Matrix:						
X	-522231446.3 mm	3.6 mm		1.000						
Y	-5145676871.4 mm	18.7 mm		.589	1.000					
Z	3720152261.4 mm	12.4 mm		-.556	-.897	1.000				
X vel	-16.1 mm/yr	.0 mm/yr		.000	.000	.000	1.000			
Y vel	-2.0 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000		
Z vel	-5.0 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000	
				X	Y	Z	X vel	Y vel	Z vel	

TABLE 4.1 (continued)

MAMMOTHL	7259	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-2448246618.9 mm	15.2 mm	1.000						
Y	-4426738288.8 mm	27.2 mm	.967	1.000					
Z	3875435800.3 mm	23.1 mm	-.943	-.957	1.000				
X vel	-16.1 mm/yr	5.9 mm/yr	.844	.807	-.785	1.000			
Y vel	24.3 mm/yr	10.4 mm/yr	.816	.843	-.797	.955	1.000		
Z vel	-16.8 mm/yr	8.8 mm/yr	-.803	-.807	.841	-.939	-.945	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MARPOINT	7217	Reference Epoch = 88/1/1	Correlation Matrix:						
X	1106629505.5 mm	1.8 mm	1.000						
Y	-4882907169.1 mm	6.3 mm	-.684	1.000					
Z	3938086835.9 mm	4.8 mm	.655	-.878	1.000				
X vel	-18.6 mm/yr	.6 mm/yr	.341	-.214	.186	1.000			
Y vel	-.8 mm/yr	2.0 mm/yr	-.223	.337	-.279	-.751	1.000		
Z vel	-1.2 mm/yr	1.7 mm/yr	.185	-.263	.293	.742	-.908	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MCD 7850	7850	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-1330008013.5 mm	2.8 mm	1.000						
Y	-5328391543.0 mm	10.2 mm	.728	1.000					
Z	3236502637.2 mm	6.3 mm	-.741	-.873	1.000				
X vel	-14.2 mm/yr	.0 mm/yr	.000	.000	.000	1.000			
Y vel	-1.5 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000		
Z vel	-8.4 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MEDICINA	7230	Reference Epoch = 88/1/1	Correlation Matrix:						
X	4461370190.1 mm	5.0 mm	1.000						
Y	919596694.3 mm	2.5 mm	-.148	1.000					
Z	4449558988.7 mm	6.1 mm	.760	-.159	1.000				
X vel	-19.1 mm/yr	5.5 mm/yr	-.757	-.089	-.638	1.000			
Y vel	9.1 mm/yr	2.5 mm/yr	-.087	-.704	.030	.060	1.000		
Z vel	13.7 mm/yr	6.0 mm/yr	-.722	.035	-.673	.882	-.020	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

METSHOVI	7601	Reference Epoch = 88/1/1	Correlation Matrix:						
X	2890652937.6 mm	7.6 mm	1.000						
Y	1310295220.0 mm	4.3 mm	.547	1.000					
Z	5513958541.3 mm	12.3 mm	.818	.578	1.000				
X vel	-19.8 mm/yr	.0 mm/yr	.000	.000	.000	1.000			
Y vel	12.9 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000		
Z vel	7.3 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MILESMON	7038	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-1204438866.7 mm	9.2 mm	1.000						
Y	-4239211098.5 mm	29.1 mm	.865	1.000					
Z	4596265988.8 mm	29.4 mm	-.846	-.951	1.000				
X vel	-19.4 mm/yr	.0 mm/yr	.000	.000	.000	1.000			
Y vel	-2.4 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000		
Z vel	-7.2 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MOJ 7288	7288	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-2356493971.6 mm	5.8 mm	1.000						
Y	-4646607684.0 mm	11.0 mm	.949	1.000					
Z	3668426552.3 mm	8.3 mm	-.901	-.932	1.000				
X vel	-15.8 mm/yr	.0 mm/yr	.000	.000	.000	1.000			
Y vel	-1.5 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000		
Z vel	-12.1 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MOJAVE12	7222	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-2356170852.3 mm	.6 mm	1.000						
Y	-4646755890.1 mm	1.5 mm	.339	1.000					
Z	3668470538.6 mm	1.8 mm	-.534	-.593	1.000				
X vel	-16.6 mm/yr	.3 mm/yr	-.048	-.010	.012	1.000			
Y vel	5.9 mm/yr	1.0 mm/yr	-.024	.300	-.108	.447	1.000		
Z vel	-6.1 mm/yr	.8 mm/yr	.014	-.190	.134	-.481	-.837	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

MON PEAK	7274	Reference Epoch = 88/1/1	Correlation Matrix:						
X	-2386289275.3 mm	2.6 mm	1.000						
Y	-4802346577.6 mm	5.1 mm	.919	1.000					
Z	3444883903.3 mm	3.8 mm	-.857	-.882	1.000				
X vel	-35.6 mm/yr	1.4 mm/yr	.450	.426	-.372	1.000			
Y vel	28.1 mm/yr	2.8 mm/yr	.414	.459	-.386	.924	1.000		
Z vel	8.0 mm/yr	2.0 mm/yr	-.382	-.409	.395	-.899	-.947	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

TABLE 4.1 (continued)

NOBEY 6M 7244 Reference Epoch = 88/1/1					Correlation Matrix:						
X	-3871168149.0	mm	37.8	mm	1.000						
Y	3428273932.5	mm	33.5	mm	-.879	1.000					
Z	3723697669.1	mm	35.8	mm	-.863	.879	1.000				
X vel	-14.0	mm/yr	.0	mm/yr	.000	.000	.000	1.000			
Y vel	-1.2	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000		
Z vel	-13.5	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
NOME 7279 Reference Epoch = 88/1/1					Correlation Matrix:						
X	-2658150279.5	mm	20.6	mm	1.000						
Y	-693821897.7	mm	7.9	mm	.670	1.000					
Z	5737236550.0	mm	44.3	mm	-.956	-.633	1.000				
X vel	-16.8	mm/yr	8.4	mm/yr	.939	.643	-.909	1.000			
Y vel	-1.0	mm/yr	3.4	mm/yr	.619	.904	-.597	.680	1.000		
Z vel	-18.9	mm/yr	18.5	mm/yr	-.891	-.608	.938	-.956	-.660	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
NOTO 7547 Reference Epoch = 88/1/1					Correlation Matrix:						
X	4934563304.0	mm	44.5	mm	1.000						
Y	1321201137.7	mm	19.1	mm	.464	1.000					
Z	3806484234.6	mm	40.0	mm	-.888	.504	1.000				
X vel	-11.0	mm/yr	28.8	mm/yr	-.995	-.477	-.884	1.000			
Y vel	20.0	mm/yr	12.3	mm/yr	-.477	-.992	-.513	.485	1.000		
Z vel	19.0	mm/yr	25.7	mm/yr	-.888	-.508	-.990	.892	.515	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
NRAO 140 7204 Reference Epoch = 88/1/1					Correlation Matrix:						
X	882880090.6	mm	1.6	mm	1.000						
Y	-4924482287.2	mm	6.2	mm	-.354	1.000					
Z	3944130552.2	mm	4.9	mm	.360	-.877	1.000				
X vel	-17.4	mm/yr	.3	mm/yr	.742	-.251	.258	1.000			
Y vel	-1.5	mm/yr	1.2	mm/yr	-.256	.754	-.659	-.401	1.000		
Z vel	1.2	mm/yr	1.0	mm/yr	.257	-.644	.736	.392	-.885	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
NRAO85 3 7214 Reference Epoch = 88/1/1					Correlation Matrix:						
X	882325770.3	mm	2.5	mm	1.000						
Y	-4925137941.4	mm	10.0	mm	-.695	1.000					
Z	3943397519.5	mm	7.8	mm	.658	-.919	1.000				
X vel	-16.9	mm/yr	.0	mm/yr	.000	.000	.000	1.000			
Y vel	-2.5	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000		
Z vel	.7	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
OCOTILLO 7270 Reference Epoch = 88/1/1					Correlation Matrix:						
X	-2335600982.9	mm	12.6	mm	1.000						
Y	-4832244233.9	mm	25.7	mm	.969	1.000					
Z	3434392453.4	mm	18.1	mm	-.948	-.963	1.000				
X vel	-14.9	mm/yr	.0	mm/yr	.000	.000	.000	1.000			
Y vel	-1.4	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000		
Z vel	-12.1	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
ONSA LA60 7213 Reference Epoch = 88/1/1					Correlation Matrix:						
X	3370606213.0	mm	1.9	mm	1.000						
Y	711917380.4	mm	1.1	mm	-.530	1.000					
Z	5349830547.9	mm	3.3	mm	.236	-.574	1.000				
X vel	-16.9	mm/yr	1.1	mm/yr	.387	-.265	.112	1.000			
Y vel	11.4	mm/yr	.6	mm/yr	-.276	.318	-.167	-.747	1.000		
Z vel	9.7	mm/yr	1.5	mm/yr	.140	-.211	.280	.328	-.648	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
OVR 7853 7853 Reference Epoch = 88/1/1					Correlation Matrix:						
X	-2410421093.6	mm	3.8	mm	1.000						
Y	-4477800420.7	mm	6.9	mm	.883	1.000					
Z	3838690257.8	mm	5.6	mm	-.805	-.862	1.000				
X vel	-16.4	mm/yr	.0	mm/yr	.000	.000	.000	1.000			
Y vel	-1.6	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000		
Z vel	-12.2	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000	1.000	
					X	Y	Z	X vel	Y vel	Z vel	
OVRO 130 7207 Reference Epoch = 88/1/1					Correlation Matrix:						
X	-2409600611.5	mm	1.3	mm	1.000						
Y	-4478349547.5	mm	2.7	mm	.785	1.000					
Z	3838603145.7	mm	2.6	mm	-.733	-.789	1.000				
X vel	-19.2	mm/yr	.3	mm/yr	.647	.567	-.466	1.000			
Y vel	6.8	mm/yr	1.1	mm/yr	.361	.514	-.362	.618	1.000		
Z vel	-6.8	mm/yr	.9	mm/yr	-.346	-.440	.400	-.604	-.858	1.000	
					X	Y	Z	X vel	Y vel	Z vel	

TABLE 4.1 (continued)

PBLOSSOM 7254 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2464070786.3 mm	7.6 mm	1.000						
Y	-4649425633.7 mm	14.3 mm	.956	1.000					
Z	3593905630.4 mm	10.6 mm	-.914	-.934	1.000				
X vel	-21.4 mm/yr	3.3 mm/yr	.724	.695	-.662	1.000			
Y vel	24.0 mm/yr	6.3 mm/yr	.690	.724	-.673	.956	1.000		
Z vel	-3.7 mm/yr	4.7 mm/yr	-.657	-.673	.708	-.929	-.951	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PENTICTN 7283 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2058840357.2 mm	74.5 mm	1.000						
Y	-3621286420.8 mm	126.6 mm	.964	1.000					
Z	4814420780.9 mm	159.5 mm	-.966	-.980	1.000				
X vel	-59.3 mm/yr	28.8 mm/yr	.986	.951	-.955	1.000			
Y vel	-25.6 mm/yr	48.7 mm/yr	.954	.986	-.969	.967	1.000		
Z vel	47.6 mm/yr	61.6 mm/yr	-.954	-.965	.986	-.970	-.982	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PIETOWN 7234 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-1640953507.7 mm	1.2 mm	1.000						
Y	-5014815976.3 mm	3.3 mm	.575	1.000					
Z	3575411826.6 mm	2.7 mm	-.610	-.743	1.000				
X vel	-15.5 mm/yr	.0 mm/yr	.000	.000	.000	1.000			
Y vel	-1.7 mm/yr	.0 mm/yr	.000	.000	.000	.000	1.000		
Z vel	-9.4 mm/yr	.0 mm/yr	.000	.000	.000	.000	.000	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PINFLATS 7256 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2369635813.1 mm	4.3 mm	1.000						
Y	-4761324918.7 mm	8.6 mm	.928	1.000					
Z	3511116072.8 mm	6.3 mm	-.871	-.903	1.000				
X vel	-25.7 mm/yr	2.8 mm/yr	.682	.642	-.584	1.000			
Y vel	18.4 mm/yr	5.8 mm/yr	.629	.676	-.599	.944	1.000		
Z vel	1.7 mm/yr	4.1 mm/yr	-.596	-.625	.648	-.908	-.942	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PLATTVIL 7258 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-1240707994.5 mm	1.7 mm	1.000						
Y	-4720454352.3 mm	5.3 mm	.788	1.000					
Z	4094481572.6 mm	4.6 mm	-.747	-.911	1.000				
X vel	-19.5 mm/yr	1.0 mm/yr	.441	.299	-.275	1.000			
Y vel	-5.0 mm/yr	3.2 mm/yr	.309	.351	-.317	.836	1.000		
Z vel	-5.3 mm/yr	2.7 mm/yr	-.293	-.324	.347	-.810	-.945	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PRESIDIO 7252 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2707704736.6 mm	3.6 mm	1.000						
Y	-4257609610.5 mm	5.6 mm	.917	1.000					
Z	3888374118.2 mm	5.1 mm	-.870	-.896	1.000				
X vel	-23.1 mm/yr	2.6 mm/yr	.182	.155	-.121	1.000			
Y vel	25.3 mm/yr	4.1 mm/yr	.150	.180	-.125	.940	1.000		
Z vel	5.7 mm/yr	3.7 mm/yr	-.124	-.135	.126	-.922	-.946	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PT REYES 7251 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2732332964.8 mm	3.9 mm	1.000						
Y	-4217634900.0 mm	5.9 mm	.923	1.000					
Z	3914490985.8 mm	5.5 mm	-.878	-.898	1.000				
X vel	-24.0 mm/yr	3.3 mm/yr	.079	.074	-.042	1.000			
Y vel	30.3 mm/yr	4.9 mm/yr	.073	.097	-.055	.946	1.000		
Z vel	14.7 mm/yr	4.5 mm/yr	-.048	-.064	.046	-.925	-.946	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
PVERDES 7268 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2525452662.0 mm	6.5 mm	1.000						
Y	-4670035675.5 mm	11.8 mm	.956	1.000					
Z	3522886689.2 mm	8.7 mm	-.918	-.939	1.000				
X vel	-25.9 mm/yr	5.0 mm/yr	.022	.019	-.005	1.000			
Y vel	36.8 mm/yr	9.0 mm/yr	.021	.034	-.017	.967	1.000		
Z vel	2.3 mm/yr	6.6 mm/yr	-.009	-.018	.017	-.944	-.963	1.000	
			X	Y	Z	X vel	Y vel	Z vel	
QUINCY 7221 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2517230756.7 mm	3.0 mm	1.000						
Y	-4198595229.7 mm	5.0 mm	.903	1.000					
Z	4076531214.8 mm	4.7 mm	-.856	-.886	1.000				
X vel	-22.7 mm/yr	1.8 mm/yr	.080	.069	-.038	1.000			
Y vel	5.9 mm/yr	3.1 mm/yr	.069	.109	-.058	.923	1.000		
Z vel	-7.4 mm/yr	2.8 mm/yr	-.041	-.063	.059	-.916	-.945	1.000	
			X	Y	Z	X vel	Y vel	Z vel	

TABLE 4.1 (continued)

RICHMOND 7219 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	961258202.7 mm	.7 mm		1.000					
Y	-5674090005.1 mm	1.4 mm		-.161	1.000				
Z	2740533643.6 mm	1.1 mm		-.041	-.774	1.000			
X vel	-12.5 mm/yr	.1 mm/yr		.045	-.074	.100	1.000		
Y vel	-2.2 mm/yr	.1 mm/yr		.045	-.074	.100	1.000	1.000	
Z vel	.1 mm/yr	.2 mm/yr		.045	-.074	.100	1.000	1.000	1.000
				X	Y	Z	X vel	Y vel	Z vel
ROBLED32 1561 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	4849245382.9 mm	48.6 mm		1.000					
Y	-360278271.4 mm	11.5 mm		-.269	1.000				
Z	4114884348.3 mm	40.9 mm		-.956	-.377	1.000			
X vel	-10.2 mm/yr	.0 mm/yr		.000	.000	.000	1.000		
Y vel	18.8 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000	
Z vel	13.6 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000
				X	Y	Z	X vel	Y vel	Z vel
SANPAULA 7255 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2554476538.8 mm	6.7 mm		1.000					
Y	-4608627389.7 mm	12.0 mm		.957	1.000				
Z	3582138230.7 mm	9.0 mm		-.926	-.946	1.000			
X vel	-37.0 mm/yr	4.3 mm/yr		.041	.024	-.016	1.000		
Y vel	17.6 mm/yr	7.7 mm/yr		.024	.017	-.012	.961	1.000	
Z vel	13.5 mm/yr	5.7 mm/yr		-.020	-.014	.011	-.946	-.959	1.000
				X	Y	Z	X vel	Y vel	Z vel
SEATTLE1 7229 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2295347863.4 mm	16.3 mm		1.000					
Y	-3638029498.9 mm	26.8 mm		.936	1.000				
Z	4693408667.1 mm	31.6 mm		-.925	-.961	1.000			
X vel	-19.6 mm/yr	.0 mm/yr		.000	.000	.000	1.000		
Y vel	-2.1 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000	
Z vel	-11.2 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000
				X	Y	Z	X vel	Y vel	Z vel
SESHAN25 7227 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2831686614.5 mm	8.6 mm		1.000					
Y	4675733824.0 mm	10.3 mm		-.707	1.000				
Z	3275327820.7 mm	10.0 mm		-.687	.698	1.000			
X vel	-15.7 mm/yr	7.2 mm/yr		-.714	.731	.541	1.000		
Y vel	-28.9 mm/yr	9.5 mm/yr		.653	-.882	-.590	-.779	1.000	
Z vel	-22.6 mm/yr	8.2 mm/yr		.551	-.670	-.585	-.704	.761	1.000
				X	Y	Z	X vel	Y vel	Z vel
SHANGHAI 7226 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2847698129.9 mm	124.0 mm		1.000					
Y	4659872909.1 mm	107.9 mm		-.942	1.000				
Z	3283958885.8 mm	96.8 mm		-.962	.945	1.000			
X vel	-25.0 mm/yr	.0 mm/yr		.000	.000	.000	1.000		
Y vel	-8.0 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000	
Z vel	-10.4 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000
				X	Y	Z	X vel	Y vel	Z vel
SNDPOINT 7280 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-3425461780.1 mm	7.6 mm		1.000					
Y	-1214669144.6 mm	3.5 mm		.791	1.000				
Z	5223858239.2 mm	11.1 mm		-.941	-.793	1.000			
X vel	-28.7 mm/yr	5.7 mm/yr		-.426	-.303	.422	1.000		
Y vel	2.7 mm/yr	2.5 mm/yr		-.325	-.201	.312	.828	1.000	
Z vel	-4.2 mm/yr	8.3 mm/yr		.424	.297	-.418	-.960	-.832	1.000
				X	Y	Z	X vel	Y vel	Z vel
SOURDOGH 7281 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	-2419993351.5 mm	9.2 mm		1.000					
Y	-1664228763.4 mm	6.6 mm		.903	1.000				
Z	5643538229.4 mm	21.1 mm		-.955	-.912	1.000			
X vel	-29.3 mm/yr	4.5 mm/yr		.874	.792	-.842	1.000		
Y vel	-6.9 mm/yr	3.3 mm/yr		.778	.843	-.791	.896	1.000	
Z vel	-3.6 mm/yr	10.3 mm/yr		-.836	-.797	.874	-.954	-.913	1.000
				X	Y	Z	X vel	Y vel	Z vel
TROMSONO 7602 Reference Epoch = 88/1/1									
				Correlation Matrix:					
X	2102904270.6 mm	5.6 mm		1.000					
Y	721602428.9 mm	3.2 mm		.122	1.000				
Z	5958201185.4 mm	12.4 mm		.705	.230	1.000			
X vel	-19.0 mm/yr	.0 mm/yr		.000	.000	.000	1.000		
Y vel	10.4 mm/yr	.0 mm/yr		.000	.000	.000	.000	1.000	
Z vel	5.4 mm/yr	.0 mm/yr		.000	.000	.000	.000	.000	1.000
				X	Y	Z	X vel	Y vel	Z vel

TABLE 4.1 (continued)

VERNAL 7290 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-1631473159.1	mm	3.2	mm	1.000				
Y	-4589128917.5	mm	7.8	mm	.877	1.000			
Z	4106759803.7	mm	6.7	mm	-.834	-.919	1.000		
X vel	-18.2	mm/yr	3.0	mm/yr	-.187	-.211	.212	1.000	
Y vel	-9.8	mm/yr	7.4	mm/yr	-.206	-.232	.227	.907	1.000
Z vel	-.7	mm/yr	6.3	mm/yr	.207	.226	-.246	-.869	-.946
					X	Y	Z	X vel	Y vel
VNDNBERG 7223 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-2678094608.2	mm	.9	mm	1.000				
Y	-4525450827.0	mm	1.8	mm	.582	1.000			
Z	3597410069.8	mm	2.0	mm	-.578	-.639	1.000		
X vel	-30.1	mm/yr	.5	mm/yr	.155	.121	-.085	1.000	
Y vel	33.9	mm/yr	1.2	mm/yr	.115	.308	-.148	.654	1.000
Z vel	16.4	mm/yr	1.0	mm/yr	-.098	-.202	.166	-.652	-.849
					X	Y	Z	X vel	Y vel
WESTFORD 7209 Reference Epoch = 88/1/1 Correlation Matrix:									
X	1492206805.8	mm	.0	mm	1.000				
Y	-4458130481.7	mm	.0	mm	.000	1.000			
Z	4296015385.6	mm	.0	mm	.000	.000	1.000		
X vel	-18.2	mm/yr	.0	mm/yr	.000	.000	.000	1.000	
Y vel	-2.9	mm/yr	.0	mm/yr	.000	.000	.000	.000	1.000
Z vel	3.4	mm/yr	.0	mm/yr	.000	.000	.000	.000	.000
					X	Y	Z	X vel	Y vel
WETTZELL 7224 Reference Epoch = 88/1/1 Correlation Matrix:									
X	4075540084.1	mm	2.0	mm	1.000				
Y	931735144.2	mm	1.2	mm	-.750	1.000			
Z	4801629181.0	mm	3.4	mm	.231	-.425	1.000		
X vel	-20.4	mm/yr	1.2	mm/yr	.358	-.332	.087	1.000	
Y vel	13.3	mm/yr	.7	mm/yr	-.363	.344	-.151	-.869	1.000
Z vel	7.8	mm/yr	1.6	mm/yr	.129	-.196	.266	.338	-.496
					X	Y	Z	X vel	Y vel
WHTHORSE 7284 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-2215213470.9	mm	4.7	mm	1.000				
Y	-2209261608.8	mm	4.8	mm	.898	1.000			
Z	5540292464.2	mm	11.2	mm	-.923	-.912	1.000		
X vel	-25.9	mm/yr	3.8	mm/yr	-.427	-.390	.435	1.000	
Y vel	3.4	mm/yr	3.7	mm/yr	-.399	-.392	.415	.908	1.000
Z vel	-16.4	mm/yr	8.9	mm/yr	.436	.409	-.475	-.939	-.932
					X	Y	Z	X vel	Y vel
YAKATAGA 7277 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-2529744088.6	mm	8.6	mm	1.000				
Y	-1942091321.8	mm	6.9	mm	.917	1.000			
Z	5505027934.4	mm	17.6	mm	-.946	-.925	1.000		
X vel	-29.1	mm/yr	5.7	mm/yr	.738	.674	-.712	1.000	
Y vel	15.3	mm/yr	4.5	mm/yr	.681	.725	-.696	.918	1.000
Z vel	46.0	mm/yr	11.9	mm/yr	-.692	-.669	.734	-.955	-.932
					X	Y	Z	X vel	Y vel
YELLOWKN 7285 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-1224124388.3	mm	31.4	mm	1.000				
Y	-2689530681.0	mm	67.5	mm	.888	1.000			
Z	5633555350.3	mm	140.9	mm	-.888	-.944	1.000		
X vel	-29.1	mm/yr	11.3	mm/yr	.983	.873	-.875	1.000	
Y vel	-25.7	mm/yr	24.2	mm/yr	.873	.983	-.930	.887	1.000
Z vel	43.4	mm/yr	50.7	mm/yr	-.872	-.927	.983	-.888	-.945
					X	Y	Z	X vel	Y vel
YUMA 7894 Reference Epoch = 88/1/1 Correlation Matrix:									
X	-2196777790.5	mm	2.9	mm	1.000				
Y	-4887337056.7	mm	6.4	mm	.921	1.000			
Z	3448425164.4	mm	4.6	mm	-.876	-.900	1.000		
X vel	-18.5	mm/yr	2.2	mm/yr	.544	.512	-.470	1.000	
Y vel	-7.1	mm/yr	4.9	mm/yr	.502	.544	-.481	.946	1.000
Z vel	-5.5	mm/yr	3.4	mm/yr	-.476	-.498	.505	-.918	-.949
					X	Y	Z	X vel	Y vel

TABLE 4.2 SITE VELOCITIES IN TOPOCENTRIC REFERENCE FRAMES

Site	Total Rates			Rel. to AM0-2		Total Rates		Rel. to AM0-2		Error Ellipsoid	
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Hor. mm/yr	Az. deg.	Hor. mm/yr	Az. deg.	mm/yr	deg.
ALGOPARK 7282	-18.9 3.4	.5 3.4	9.5 15.4	.5	-1.2	18.9 3.4	271.4 10.4	1.3 3.4	157.0 153.0	15.5 2.9	254.2 81.1
AUSTINTX 7271	-13.8 .0	-7.0 .0	.0 .0	.0	.0	15.5 .0	242.9 .0	.0 .0	.0 .0	.0 .0	.0 .0
BERMUDA 7294	-14.4 .0	7.6 .0	.0 .0	.0	.0	16.3 .0	297.7 .0	.0 .0	.0 .0	.0 .0	.0 .0
BLKBUTTE 7269	-19.7 .9	-10.3 1.3	-11.1 9.2	-6.6	4.0	22.2 .9	242.3 3.3	7.7 1.1	301.1 8.3	9.2 1.3	161.2 348.4
BLOOMIND 7291	-17.3 .0	-2.1 .0	.0 .0	.0	.0	17.4 .0	263.0 .0	.0 .0	.0 .0	.0 .0	.0 .0
BREST 7604	16.0 .0	17.8 .0	.0 .0	.0	.0	24.0 .0	41.9 .0	.0 .0	.0 .0	.0 .0	.0 .0
CARNUSTY 7603	14.2 .0	17.8 .0	.0 .0	.0	.0	22.7 .0	38.6 .0	.0 .0	.0 .0	.0 .0	.0 .0
CARROLGA 7228	-15.4 .0	-1.5 .0	.0 .0	.0	.0	15.5 .0	264.5 .0	.0 .0	.0 .0	.0 .0	.0 .0
CHLBOLTN 7215	16.0 .0	17.7 .0	.0 .0	.0	.0	23.9 .0	42.1 .0	.0 .0	.0 .0	.0 .0	.0 .0
DEADMANL 7267	-19.9 2.8	-10.4 4.0	70.3 24.8	-6.7	4.1	22.4 3.3	242.3 9.3	7.9 3.0	301.5 28.4	24.9 2.8	183.3 100.2
DSS15 7231	-13.4 .0	-14.8 .0	.0 .0	.0	.0	19.9 .0	222.3 .0	.0 .0	.0 .0	.0 .0	.0 .0
DSS45 1642	16.0 6.8	65.0 7.9	13.1 .0	-4.9	13.5	67.0 7.8	13.8 5.9	14.3 7.8	340.2 27.7	13.8 6.4	15.3 51.0
DSS65 1665	15.3 4.0	33.5 4.6	53.5 15.8	-2.7	15.7	36.9 4.2	24.5 7.1	15.9 4.8	350.3 14.0	15.9 3.7	327.6 61.7

TABLE 4.2 (continued)

Site	Total Rates			Rel. to AM0-2		Total Rates		Rel. to AM0-2		Error Ellipsoid	
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Hor. mm/yr	Az. deg.	Hor. mm/yr	Az. deg.	mm/yr	deg
EFLSBERG 7203	14.8 2.6	16.9 1.9	3.1 8.0	-3.3	-2	22.5 1.9	41.3 6.6	3.3 2.5	266.5 34.2	8.1 2.4	294.5 108.4
ELY 7286	-18.5 .8	-13.6 1.1	-2.4 6.9	-3.7	-4	23.0 .8	233.5 2.5	3.7 .8	275.5 16.4	6.9 1.0	166.5 353.4
FLAGSTAF 7261	-15.0 1.2	-11.0 1.7	24.3 11.4	-.9	1.8	18.6 1.4	233.6 4.8	2.0 1.6	333.4 37.8	11.4 1.7	173.4 359.4
FORT ORD 7266	-42.2 .9	21.4 1.1	6.1 7.9	3.2	-8.5	47.3 1.0	296.9 1.3	9.1 1.1	159.4 5.5	7.9 1.1	152.8 351.2
FORTORDS 7241	-53.6 7.0	11.2 10.7	120.3 70.8	-8.1	-18.7	54.7 7.1	281.8 11.2	20.4 10.4	203.6 21.0	70.9 10.2	180.8 5.9
FTD 7900 7900	-13.4 .0	-9.7 .0	.0 .0	.0	.0	16.5 .0	234.2 .0	.0 .0	.0 .0	.0 .0	.0 .0
GILCREEK 7225	-10.1 .7	-24.0 .7	5.3 1.6	.2	-.7	26.1 .7	202.7 1.5	.7 .7	167.7 54.8	1.6 .4	99.7 4.5
GOLDVENU 1513	-17.8 .5	-7.5 .5	-1 2.3	-4.4	7.3	19.3 .5	247.3 1.6	8.5 .5	328.7 3.5	2.3 .5	59.3 340.0
GORF7102 7102	-17.3 .0	2.2 .0	.0 .0	.0	.0	17.4 .0	277.3 .0	.0 .0	.0 .0	.0 .0	.0 .0
GRASSE 7605	19.6 .0	17.1 .0	.0 .0	.0	.0	26.0 .0	48.9 .0	.0 .0	.0 .0	.0 .0	.0 .0
HALEAKAL 7120	-67.8 .0	37.3 .0	.0 .0	.0	.0	77.4 .0	298.8 .0	.0 .0	.0 .0	.0 .0	.0 .0
HARTRAO 7232	26.8 5.4	11.3 5.5	-10.2 7.3	4.6	-10.6	29.1 5.2	67.2 11.1	11.6 5.6	156.5 25.9	8.5 5.2	331.5 65.8
HATCREEK 7218	-20.8 .5	-10.1 .4	1.3 1.6	-6.8	6.2	23.1 .4	244.0 1.1	9.2 .5	312.7 2.5	1.6 .4	96.0 57.8
HAYSTACK 7205	-17.5 .3	3.9 .4	2.5 1.0	.7	-.6	17.9 .3	282.7 1.2	.9 .3	133.1 21.3	1.0 .4	294.6 6.3
										.3	96.1 6.1

TABLE 4.2 (continued)

Site	Total Rates			Rel. to AM0-2			Total Rates			Rel. to AM0-2			Error Ellipsoid		
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Up mm/yr	mm/yr	deg	deg
HOBERT26 7242	14.7 .0	52.4 .0	.0 .0	.0	.0	.0	54.4 .0	15.7 .0	.0	.0	.0	.0	.0	.0	.0
HOHENFRG 7600	18.4 .0	16.7 .0	.0 .0	.0	.0	.0	24.8 .0	47.7 .0	.0	.0	.0	.0	.0	.0	.0
HRAS 085 7216	-13.9 .3	-8.5 .2	-4.5 1.0	-5.5	1.2	.0	16.3 .2	238.6 .9	.0	1.3 .2	339.2 11.0	.0	1.0 .2	63.7 330.9	78.2 -11.7
JPL MV1 7263	-39.5 .6	6.2 .8	3.7 5.5	7.4	-22.2	.0	40.0 .6	278.9 1.1	.0	23.4 .8	161.5 1.5	.0	5.5 .8	158.2 351.3	88.8 1.1
KASHIMA 1856	-2.5 1.6	-7.9 2.2	-5.1 2.5	-12.2	9.5	.0	8.2 2.1	197.3 11.7	.0	15.5 1.8	307.7 7.4	.0	3.1 1.7	15.5 119.1	50.2 11.0
KAUAI 1311	-64.1 1.3	33.9 1.1	.0 .0	3.8	-3.4	.0	72.5 1.4	297.8 .8	.0	5.1 1.4	131.8 10.7	.0	1.4 .9	127.0 37.0	.0 .0
KODIAK 7278	-16.6 1.2	-14.6 1.3	14.8 9.9	-8.6	9.6	.0	22.1 1.2	228.6 3.3	.0	12.9 1.3	318.1 5.4	.0	9.9 1.3	150.6 347.8	88.7 1.2
KWAJAL26 4968	-73.5 2.0	27.8 2.6	-7.5 5.1	1.9	-3.1	.0	78.6 2.3	290.7 1.7	.0	3.7 2.7	149.1 30.3	.0	5.2 2.6	9.2 329.5	77.3 -9.8
LEONRDOK 7292	-15.8 .0	-6.2 .0	.0 .0	.0	.0	.0	17.0 .0	248.6 .0	.0	.0	.0	.0	.0	.0	.0
MAMMOTHL 7259	-25.8 1.5	-5.1 2.2	-21.0 14.6	-12.1	10.4	.0	26.3 1.5	258.8 4.9	.0	16.0 2.0	310.6 6.5	.0	14.6 2.2	182.6 346.7	88.4 1.5
MARPOINT 7217	-18.3 .4	1.1 .5	-3.3 2.6	-1.2	-.9	.0	18.3 .4	273.5 1.7	.0	1.6 .5	233.3 17.3	.0	2.6 .4	164.0 9.5	89.4 -3.3
MCD 7850 7850	-13.4 .0	-9.7 .0	.0 .0	.0	.0	.0	16.6 .0	234.1 .0	.0	.0	.0	.0	.0	.0	.0
MEDICINA 7230	12.8 2.6	21.6 2.1	-2.4 7.8	-7.6	5.0	.0	25.1 1.9	30.7 6.3	.0	9.1 2.7	303.2 12.1	.0	7.9 2.5	296.1 116.5	81.7 8.3
METSHOVI 7601	19.9 .0	14.6 .0	.0 .0	.0	.0	.0	24.7 .0	53.6 .0	.0	.0	.0	.0	.0	.0	.0

TABLE 4.2 (continued)

Site	Total Rates Up			Rel. to AM0-2		Total Rates		Rel. to AM0-2		Error Ellipsoid	
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Hor. mm/yr	Az. deg.	Hor. mm/yr	Az. deg.	mm/yr	deg
MILESMON 7038	-18.0 .0	-10.5 .0	.0 .0	.0 .0	.0 .0	20.8 .0	239.8 .0	.0 .0	.0 .0	.0 .0	.0 .0
MOJ 7288 7288	-13.4 .0	-14.8 .0	.0 .0	.0 .0	.0 .0	19.9 .0	222.2 .0	.0 .0	.0 .0	.0 .0	.0 .0
MOJAVE12 7222	-17.5 .4	-6.3 .3	-1.7 1.1	-4.1 .0	8.5 .0	18.6 .4	250.2 1.1	9.4 .3	334.0 2.3	1.2 .2	78.7 337.1 66.3 74.5 3.2 -15.1
MON PEAK 7274	-44.4 .5	11.8 .5	-3.5 3.6	3.5 .0	-15.9 .0	45.9 .5	284.8 .7	16.3 .5	167.8 1.7	3.6 .5 .5	116.4 2.0 92.0 88.4 -1.4
NOBEY 6M 7244	10.2 .0	-16.6 .0	.0 .0	.0 .0	.0 .0	19.4 .0	148.5 .0	.0 .0	.0 .0	.0 .0	.0 .0 .0
NOME 7279	-3.3 2.4	-23.0 2.4	-10.0 20.3	.0 .0	2.5 .0	23.2 2.3	188.1 6.0	2.5 2.4	359.6 55.3	20.3 2.6 2.1	26.4 314.5 44.5 89.1 -3 -8
NOTO 7547	22.2 10.6	18.5 9.1	7.0 38.0	.0 .0	2.3 .0	28.9 10.1	50.2 19.1	2.3 9.1	260.0 .8	38.1 10.6 8.8	344.6 84.6 354.7 86.2 -3.7
NRAO 140 7204	-17.4 .3	2.0 .4	-1.5 1.5	-3.3 .0	1.1 .0	17.5 .3	276.5 1.2	1.1 .4	344.6 15.4	1.5 .4 3	263.6 6.6 96.7 87.0 2.9
NRAO85 3 7214	-17.1 .0	.9 .0	.0 .0	.0 .0	.0 .0	17.1 .0	272.9 .0	.0 .0	.0 .0	.0 .0	.0 .0 .0
OCOTILLO 7270	-12.8 .0	-14.4 .0	.0 .0	.0 .0	.0 .0	19.2 .0	221.7 .0	.0 .0	.0 .0	.0 .0	.0 .0 .0
ONSALA60 7213	14.6 .8	17.2 1.0	1.5 1.5	-3.0 .0	.6 .0	22.6 1.0	40.4 2.1	3.1 .8	281.9 19.2	1.7 1.0 3	294.1 22.8 112.5 64.6 -6 25.4
OVR 7853 7853	-13.7 .0	-15.3 .0	.0 .0	.0 .0	.0 .0	20.5 .0	221.9 .0	.0 .0	.0 .0	.0 .0	.0 .0 .0
OVRO 130 7207	-20.1 .4	-7.3 .4	-1.6 1.4	-6.4 .0	8.0 .0	21.4 .4	250.2 1.0	10.3 .4	321.2 2.2	1.4 .4 3	81.7 341.7 71.1 77.0 2.3 -12.8
PBLOSSOM 7254	-30.1 .9	3.4 1.2	-11.3 8.4	16.4 .0	-24.9 .0	30.3 .9	276.3 2.3	29.8 1.1	146.7 1.8	8.4 1.2 9	157.0 357.2 87.2 88.4 1.5 -6

TABLE 4.2 (continued)

Site	Total Rates			Rel. to AM0-2		Total Rates		Rel. to AM0-2		Error Ellipsoid		
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr	Hor. mm/yr	Az. deg.	Hor. mm/yr	Az. deg.	mm/yr	deg	
PENTICTN 7283	-38.9 6.3	-8.1 7.6	69.6 83.1	-22.5	7.7	39.7 6.3	258.3 11.0	23.8 6.6	288.8 17.7	83.1 7.3 6.2	193.5 343.5 73.5	88.3 1.5 8
PIETOWN 7234	-14.2 .0	-11.4 .0	.0 .0	.0	.0	18.2 .0	231.3 .0	.0 .0	.0 .0	.0 .0	.0 .0	.0 .0
PINFLATS 7256	-31.2 .9	4.2 1.2	-3.3 7.5	-18.3	18.7	31.5 .9	277.6 2.1	26.2 1.0	315.8 2.2	7.5 1.2 1.8	140.5 359.8 89.8	88.3 1.3 1.1
PLATTVIL 7258	-17.6 .5	-10.4 .7	4.1 4.2	-1.2	-4	20.4 .6	239.5 1.8	1.2 .6	253.1 32.2	4.2 .5	188.7 1.7 91.7	88.5 1.4 2
PRESIDIO 7252	-33.0 .8	10.0 .9	-3.6 6.0	11.3	-20.1	34.5 .8	286.8 1.5	23.1 .9	150.7 2.0	6.0 .9 1.8	140.1 357.7 87.7	88.9 -7 -7
PT REYES 7251	-36.7 .9	19.2 1.1	-7 7.3	7.5	-11.1	41.4 .9	297.7 1.5	13.4 1.1	145.8 4.2	7.3 1.1 1.9	191.3 90.4	89.2 -8 2
PVERDES 7268	-40.3 1.1	13.0 1.5	-15.4 12.0	7.2	-15.5	42.3 1.1	287.9 2.0	17.1 1.4	155.1 4.1	12.0 1.5 1.1	187.5 22.7 92.7	88.6 1.4 1.1
QUINCY 7221	-22.5 .6	-10.0 .7	-3 4.4	-8.6	6.2	24.6 .6	246.2 1.6	10.6 .7	306.1 3.5	4.4 .7 6	148.0 343.6 73.6	88.3 1.6 -4
RICHMOND 7219	-12.7 .1	.1 .2	.1 .0	-2	-5	12.7 .1	270.5 .8	.6 .2	201.1 .0	.2 .0	21.1 .0	-9.3 .0 0
ROBLED32 1561	18.0 .0	17.8 .0	.0 .0	.0	.0	25.3 .0	45.2 .0	.0 .0	.0 .0	.0 .0	.0 .0	.0 .0
SANPAULA 7255	-40.9 1.0	9.7 1.3	9.8 10.4	6.1	-19.0	42.0 1.1	283.3 1.8	20.0 1.4	162.4 3.0	10.4 1.3 1.0	161.8 348.0 78.0	88.3 1.7 -2
SEATTLE1 7229	-15.4 .0	-16.6 .0	.0 .0	.0	.0	22.7 .0	222.9 .0	.0 .0	.0 .0	.0 .0	.0 .0	.0 .0
SESHAN25 7227	28.4 3.9	-10.8 4.4	-25.9 13.2	2.8	1.3	30.4 3.9	110.8 8.2	3.1 4.0	66.1 79.0	13.3 4.3 3.8	52.3 357.4 87.5	86.0 -2.3 -3.3
SHANGHAI 7226	25.5 .0	-12.1 .0	.0 .0	.0	.0	28.3 .0	115.4 .0	.0 .0	.0 .0	.0 .0	.0 .0	.0 .0

TABLE 4.2 (continued)

Site	Total Rates			Rel. to AM0-2			Total Rates			Rel. to AM0-2			Error Ellipsoid		
	East mm/yr	North mm/yr	Up mm/yr	East mm/yr	North mm/yr		Hor. mm/yr	Az. deg.		Hor. mm/yr	Az. deg.		mm/yr	deg	deg.
SNDPOINT 7280	-12.1 1.3	-23.9 1.4	11.4 10.2	-7.1	1.2		26.8 1.3	206.9 2.9		7.2 1.3	279.9 10.7		10.2 1.3	143.9 58.7	88.7 -1
SOURDOGH 7281	-10.9 1.2	-26.6 1.3	9.6 11.6	-.1	-3.6		28.7 1.3	202.4 2.5		3.6 1.3	182.2 19.1		11.6 1.3	42.6 72.2	89.8 -2
TROMSONO 7602	16.0 .0	15.6 .0	.0 .0	.0	.0		22.3 .0	45.8 .0		.0 .0	.0 .0		.0 .0	.0 .0	.0 .0
VERNAL 7290	-13.8 1.2	-10.5 1.7	11.2 10.0	2.0	1.5		17.3 1.5	232.9 4.7		2.5 1.5	53.0 32.9		10.0 1.6	199.3 8.0	87.8 2.1
VNDNBERG 7223	-43.2 .5	21.4 .4	-2.1 1.5	4.0	-8.0		48.2 .5	296.3 .5		9.0 .4	153.2 2.9		1.5 .4	77.4 46.4	80.3 -8.3
WESTFORD 7209	-18.2 .0	4.6 .0	.0 .0	.0	.0		18.8 .0	284.1 .0		.0 .0	.0 .0		.0 .0	.0 .0	.0 .0
WETTZELL 7224	17.5 .9	17.9 1.1	-5.2 1.5	-2.3	1.5		25.0 1.1	44.3 2.0		2.7 .9	302.5 24.1		1.7 1.1	296.2 27.3	61.8 -6
WHTHORSE 7284	-20.7 1.1	-21.9 1.3	-6.5 10.2	-6.6	-1.4		30.2 1.2	223.3 2.3		6.7 1.1	258.0 11.0		10.2 1.3	217.2 351.7	89.6 -3
YAKATAGA 7277	-29.9 1.4	11.0 1.6	46.7 13.7	-18.2	33.4		31.8 1.5	290.3 2.8		38.0 1.6	331.4 2.2		13.7 1.6	171.4 350.6	89.6 -4
YELLOWKN 7285	-15.9 4.8	-11.4 7.3	54.8 56.6	3.9	2.4		19.5 5.5	234.4 20.1		4.6 5.3	58.2 86.4		56.6 4.7	27.5 82.1	89.1 -5
YUMA 7894	-14.0 .7	-12.2 .9	8.8 6.3	-.9	1.5		18.6 .8	228.8 2.5		1.8 .9	328.7 22.9		6.3 .7	142.6 356.0	89.0 -8

5.0 SITE POSITIONS BY YEAR

Tables 5.1 through 5.14 give the X, Y, and Z coordinates for each site on January 1 from 1979 through 1992 in the ITRF89. See the text for an explanation of how this was established. Coordinates and their respective formal errors are all in mm. The formal errors are one-sigma standard statistical errors propagated to the epoch of the table. The site position errors for WESTFORD are zero as it is the reference station which defines the coordinate system origin. Site position errors do not change from year to year if the site's velocity was not estimated.

The positions for YAKATAGA for 1988-92 are extrapolations based on the linear motion observed through the 1987 Alaska mobile campaign. Later data obtained at YAKATAGA were not used to compute positions at YAKATAGA because of discontinuous motion associated with a series of earthquakes in the Gulf of Alaska during the winter of 1987-88. Similarly, the data obtained at FORTORDS, PRESIDIO, and PT REYES after the October 1989 Loma Prieta earthquake were not used to estimate positions at these sites. The positions for these sites for 1990-92 are extrapolations of the previous linear motion.

TABLE 5.1
SITE POSITIONS FOR 1979

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035124.4	18.4	-4346132147.7	71.6	4561970976.8	68.5
AUSTINTX	7271	-737793544.1	3.6	-5459892241.9	16.0	3202990442.3	9.4
BERMUDA	7294	2307209747.1	4.6	-4874215774.2	9.9	3394317696.5	6.6
BLKBUTTE	7269	-2306306672.8	28.4	-4787914532.0	58.9	3515736481.0	41.8
BLOOMIND	7291	302384740.4	10.2	-4941699001.0	34.7	4007908387.5	28.9
BREST	7604	4228877365.8	8.8	-333104459.2	2.9	4747180687.8	10.2
CARNUSTY	7603	3526416661.7	10.4	-171421358.1	3.8	5294098579.4	14.4
CARROLGA	7228	453520896.1	9.3	-5300506727.4	35.3	3507207332.8	21.6
CHLBOLTN	7215	4008310356.7	9.6	-100651015.4	5.5	4943794481.1	12.5
DEADMANL	7267	-2336819115.2	85.9	-4732586542.3	167.0	3570329645.0	115.8
DSS15	7231	-2353538481.1	4.4	-4641649513.7	8.8	3676670051.6	7.5
DSS45	1642	-4460934685.6	128.0	2682765735.4	85.9	-3674382110.5	76.6
DSS65	1665	4849336601.8	114.6	-360489045.3	42.8	4114747995.0	119.1
EFLSBERG	7203	4033947787.2	15.1	486990263.4	8.7	4900430500.2	20.7
ELY	7286	-2077235995.5	21.8	-4486712728.4	46.8	4018753785.8	38.9
FLAGSTAF	7261	-1923992332.3	29.2	-4850854366.2	71.5	3658589194.7	52.1
FORT ORD	7266	-2697026349.8	27.7	-4354393581.3	44.9	3788077354.7	38.4
FORTORDS	7241	-2699839220.9	321.3	-4359126572.5	508.7	3781050099.2	407.7
FTD 7900	7900	-1324227677.5	3.6	-5332063007.1	12.8	3232023030.8	7.6
GILCREEK	7225	-2281546798.5	6.0	-1453645009.2	8.2	5756993216.3	12.2
GOLDVENU	1513	-2351128834.8	6.1	-4655477121.6	12.7	3660956898.5	10.9
GORF7102	7102	1130686871.2	2.9	-4831352982.6	10.2	3994110774.6	8.5
GRASSE	7605	4581697945.2	6.7	556125464.2	2.6	4389351135.5	7.5
HALEAKAL	7120	-5465998254.7	14.1	-2404409172.4	7.4	2242228096.0	7.1
HARTRAO	7232	5085442909.6	74.3	2668263222.8	45.8	-2768697416.1	34.1
HATCREEK	7218	-2523969606.4	4.9	-4123506405.7	10.4	4147752596.7	9.4
HAYSTACK	7205	1492405103.0	1.7	-4457266448.5	4.2	4296881577.6	4.2
HOBART26	7242	-3950236047.2	13.7	2522347536.3	12.8	-4311563283.2	11.4
HOHENFRG	7600	3778215188.6	5.7	698644513.3	2.3	5074053328.5	7.6
HRAS 085	7216	-1324210697.8	1.5	-5332023148.8	7.2	3232118382.4	5.5
JPL MV1	7263	-2493305545.3	17.3	-4655197772.0	32.5	3565519201.9	24.3
KASHIMA	1856	-3997892226.1	15.3	3276581238.3	9.6	3724118411.8	24.9
KAUAI	1311	-5543845826.5	5.2	-2054564760.8	10.2	2387813495.9	9.4
KODIAK	7278	-3026939809.2	45.3	-1575911851.2	26.1	5370362410.7	76.7
KWAJAL26	4968	-6143536684.7	37.4	1363996587.9	17.0	1034707175.5	24.8
LEONRDOK	7292	-522231301.4	3.6	-5145676853.3	18.7	3720152306.7	12.4
MAMMOTHL	7259	-2448246474.1	40.9	-4426738507.2	72.2	3875435951.9	60.6
MARPOINT	7217	1106629672.6	5.0	-4882907161.7	17.3	3938086846.7	14.3
MCD 7850	7850	-1330007885.6	2.8	-5328391529.2	10.3	3236502712.5	6.3
MEDICINA	7230	4461370361.7	53.6	919596612.1	24.1	4449558865.5	58.2
METSHOVI	7601	2890653115.3	7.6	1310295104.4	4.3	5513958475.6	12.3
MILESMON	7038	-1204438692.4	9.2	-4239211077.4	29.1	4596266053.9	29.4
MOJ 7288	7288	-2356493829.7	5.8	-4646607670.3	11.0	3668426660.8	8.4
MOJAVE12	7222	-2356170702.7	2.4	-4646755943.3	8.3	3668470593.8	6.8
MON PEAK	7274	-2386288954.9	11.3	-4802346830.4	23.3	3444883831.6	16.7

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168023.2	37.8	3428273943.1	33.5	3723697790.1	35.8
NOME	7279	-2658150128.8	56.8	-693821888.9	23.3	5737236720.1	125.9
NOTO	7547	4934563403.3	303.7	1321200957.4	130.0	3806484063.7	270.5
NRAO 140	7204	882880247.4	2.0	-4924482273.8	7.4	3944130541.1	6.1
NRAO85 3	7214	882325922.7	2.5	-4925137919.0	10.0	3943397513.4	7.8
OCOTILLO	7270	-2335600849.0	12.6	-4832244221.3	25.7	3434392562.1	18.1
ONSALA60	7213	3370606365.1	9.6	711917278.0	5.5	5349830460.7	13.3
OVR 7853	7853	-2410420945.9	3.8	-4477800406.2	6.9	3838690367.4	5.6
OVRO 130	7207	-2409600438.8	2.5	-4478349608.6	9.0	3838603206.5	7.6
PBLOSSOM	7254	-2464070594.1	24.9	-4649425850.0	47.4	3593905663.3	35.4
PENTICTN	7283	-2058839824.0	185.8	-3621286190.8	314.2	4814420353.0	398.1
PIETOWN	7234	-1640953368.3	1.2	-5014815961.5	3.3	3575411911.4	2.7
PINFLATS	7256	-2369635581.7	22.6	-4761325084.1	46.6	3511116057.9	33.3
PLATTVIL	7258	-1240707819.3	8.4	-4720454307.3	27.5	4094481620.3	23.1
PRESIDIO	7252	-2707704528.9	22.9	-4257609838.1	36.4	3888374067.2	32.7
PT REYES	7251	-2732332748.5	29.4	-4217635173.0	44.0	3914490853.4	40.7
PVERDES	7268	-2525452429.1	45.2	-4670036006.8	81.3	3522886669.0	59.5
QUINCY	7221	-2517230552.1	16.4	-4198595282.6	27.4	4076531281.4	25.6
RICHMOND	7219	961258314.9	.8	-5674089985.7	1.8	2740533642.4	1.7
ROBLED32	1561	4849245474.4	48.6	-360278440.5	11.5	4114884225.8	40.8
SANPAULA	7255	-2554476205.6	38.6	-4608627547.7	70.5	3582138109.0	52.2
SEATTLE1	7229	-2295347687.0	16.3	-3638029479.7	26.8	4693408768.2	31.6
SESHAN25	7227	-2831686473.4	71.2	4675734084.3	94.9	3275328024.4	79.8
SHANGHAI	7226	-2847697904.7	124.0	4659872980.9	107.9	3283958979.2	96.8
SNDPOINT	7280	-3425461521.8	54.6	-1214669168.8	23.3	5223858276.7	80.0
SOURDOGH	7281	-2419993088.0	32.6	-1664228701.6	24.0	5643538262.1	75.1
TROMSONO	7602	2102904441.3	5.6	721602335.4	3.2	5958201136.5	12.4
VERNAL	7290	-1631472995.6	27.7	-4589128829.3	69.1	4106759810.0	59.0
VNDNBERG	7223	-2678094337.4	4.9	-4525451132.4	10.4	3597409922.3	8.5
WESTFORD	7209	1492206969.8	0.0	-4458130456.1	0.0	4296015355.2	0.0
WETTZELL	7224	4075540267.4	10.6	931735024.8	6.0	4801629110.8	13.5
WHTHORSE	7284	-2215213237.3	36.2	-2209261639.2	35.6	5540292611.6	86.0
YAKATAGA	7277	-2529743826.9	44.9	-1942091459.4	35.5	5505027520.4	94.6
YELLOWKN	7285	-1224124126.2	70.8	-2689530450.0	152.1	5633554960.2	318.7
YUMA	7894	-2196777624.0	18.4	-4887336993.1	40.9	3448425213.6	28.8

TABLE 5.2
SITE POSITIONS FOR 1980

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035107.2	15.5	-4346132157.8	60.2	4561970984.0	57.7
AUSTINTX	7271	-737793558.2	3.6	-5459892243.5	16.0	3202990436.2	9.4
BERMUDA	7294	2307209732.4	4.6	-4874215776.7	9.9	3394317702.9	6.6
BLKBUTTE	7269	-2306306689.0	25.0	-4787914520.3	51.8	3515736466.2	36.8
BLOOMIND	7291	302384723.2	10.2	-4941699003.3	34.7	4007908385.8	28.9
BREST	7604	4228877353.8	8.8	-333104442.2	2.9	4747180699.7	10.2
CARNUSTY	7603	3526416647.6	10.4	-171421343.2	3.8	5294098589.2	14.4
CARROLGA	7228	453520880.8	9.3	-5300506729.5	35.3	3507207331.6	21.6
CHLBOLTN	7215	4008310343.4	9.6	-100650999.0	5.5	4943794492.3	12.5
DEADMANL	7267	-2336819161.3	76.1	-4732586590.8	148.0	3570329675.9	102.6
DSS15	7231	-2353538496.9	4.4	-4641649515.2	8.8	3676670039.5	7.5
DSS45	1642	-4460934726.6	115.7	2682765741.3	77.4	-3674382057.9	69.1
DSS65	1665	4849336621.8	103.2	-360489031.4	38.6	4114748055.2	107.2
EFLSBERG	7203	4033947774.5	11.4	486990276.8	6.9	4900430513.4	15.7
ELY	7286	-2077236015.1	19.5	-4486712726.8	41.8	4018753773.8	34.8
FLAGSTAF	7261	-1923992355.9	25.6	-4850854385.0	62.8	3658589199.7	45.7
FORT ORD	7266	-2697026381.4	24.4	-4354393552.5	39.5	3788077375.5	33.8
FORTORDS	7241	-2699839313.8	289.5	-4359126620.8	458.3	3781050179.8	367.3
FTD 7900	7900	-1324227691.7	3.6	-5332063008.6	12.8	3232023022.4	7.6
GILCREEK	7225	-2281546824.2	5.3	-1453645013.6	7.2	5756993211.0	10.8
GOLDVENU	1513	-2351128852.6	5.3	-4655477117.4	11.0	3660956892.4	9.5
GORF7102	7102	1130686854.1	2.9	-4831352985.2	10.2	3994110776.4	8.5
GRASSE	7605	4581697931.2	6.7	556125482.2	2.6	4389351147.9	7.5
HALEAKAL	7120	-5465998270.0	14.1	-2404409105.1	7.4	2242228130.9	7.1
HARTRAO	7232	5085442893.5	66.0	2668263244.5	40.6	-2768697401.5	30.3
HATCREEK	7218	-2523969627.7	4.3	-4123506400.7	9.2	4147752589.2	8.4
HAYSTACK	7205	1492405086.2	1.4	-4457266453.3	3.6	4296881582.2	3.6
HOBART26	7242	-3950236085.0	13.7	2522347543.0	12.8	-4311563244.7	11.4
HOHENFRG	7600	3778215172.1	5.7	698644528.9	2.3	5074053338.6	7.6
HRAS 085	7216	-1324210711.4	1.3	-5332023145.9	6.4	3232118372.9	4.9
JPL MV1	7263	-2493305579.9	15.2	-4655197753.0	28.4	3565519209.1	21.3
KASHIMA	1856	-3997892224.9	13.5	3276581240.5	8.5	3724118402.5	22.0
KAUAI	1311	-5543845836.9	4.7	-2054564696.3	9.0	2387813527.3	8.4
KODIAK	7278	-3026939834.8	40.4	-1575911845.9	23.3	5370362415.5	68.4
KWAJAL26	4968	-6143536657.1	32.6	1363996657.1	14.9	1034707201.7	21.9
LEONRDOK	7292	-522231317.5	3.6	-5145676855.3	18.7	3720152301.7	12.4
MAMMOTHL	7259	-2448246490.2	35.2	-4426738483.0	62.1	3875435935.0	52.1
MARPOINT	7217	1106629654.1	4.5	-4882907162.5	15.4	3938086845.5	12.7
MCD 7850	7850	-1330007899.8	2.8	-5328391530.7	10.3	3236502704.2	6.3
MEDICINA	7230	4461370342.7	48.1	919596621.3	21.6	4449558879.2	52.2
METSHOVI	7601	2890653095.5	7.6	1310295117.3	4.3	5513958482.9	12.3
MILESMON	7038	-1204438711.8	9.2	-4239211079.7	29.1	4596266046.7	29.4
MOJ 7288	7288	-2356493845.5	5.8	-4646607671.8	11.0	3668426648.7	8.4
MOJAVE12	7222	-2356170719.3	2.2	-4646755937.4	7.4	3668470587.7	6.1
MON PEAK	7274	-2386288990.5	10.0	-4802346802.3	20.6	3444883839.6	14.8

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168037.1	37.8	3428273941.9	33.5	3723697776.7	35.8
NOME	7279	-2658150145.5	48.5	-693821889.9	20.0	5737236701.2	107.6
NOTO	7547	4934563392.3	274.9	1321200977.4	117.7	3806484082.7	244.9
NRAO 140	7204	882880230.0	1.7	-4924482275.3	6.4	3944130542.3	5.3
NRAO85 3	7214	882325905.7	2.5	-4925137921.5	10.0	3943397514.1	7.8
OCOTILLO	7270	-2335600863.9	12.6	-4832244222.7	25.7	3434392550.1	18.1
ONSALA60	7213	3370606348.2	8.5	711917289.4	4.9	5349830470.4	11.8
OVR 7853	7853	-2410420962.3	3.8	-4477800407.8	6.9	3838690355.2	5.6
OVRO 130	7207	-2409600458.0	2.2	-4478349601.8	7.9	3838603199.7	6.7
PBLOSSOM	7254	-2464070615.4	21.7	-4649425825.9	41.3	3593905659.6	30.8
PENTICTN	7283	-2058839883.2	157.1	-3621286216.4	265.7	4814420400.5	336.7
PIETOWN	7234	-1640953383.8	1.2	-5014815963.1	3.3	3575411902.0	2.7
PINFLATS	7256	-2369635607.4	19.8	-4761325065.8	40.8	3511116059.6	29.2
PLATTVIL	7258	-1240707838.8	7.4	-4720454312.3	24.4	4094481615.0	20.5
PRESIDIO	7252	-2707704551.9	20.4	-4257609812.8	32.3	3888374072.8	29.0
PT REYES	7251	-2732332772.5	26.2	-4217635142.6	39.2	3914490868.1	36.2
PVERDES	7268	-2525452455.0	40.3	-4670035970.0	72.4	3522886671.2	53.1
QUINCY	7221	-2517230574.8	14.6	-4198595276.7	24.4	4076531274.0	22.8
RICHMOND	7219	961258302.5	.8	-5674089987.9	1.7	2740533642.5	1.5
ROBLED32	1561	4849245464.2	48.6	-360278421.7	11.5	4114884239.4	40.8
SANPAULA	7255	-2554476242.6	34.4	-4608627530.2	62.9	3582138122.6	46.6
SEATTLE1	7229	-2295347706.6	16.3	-3638029481.9	26.8	4693408757.0	31.6
SESHAN25	7227	-2831686489.1	64.1	4675734055.4	85.4	3275328001.8	71.7
SHANGHAI	7226	-2847697929.7	124.0	4659872972.9	107.9	3283958968.9	96.8
SNDPOINT	7280	-3425461550.5	49.0	-1214669166.1	20.9	5223858272.5	71.8
SOURDOGH	7281	-2419993117.3	28.2	-1664228708.4	20.8	5643538258.5	64.9
TROMSONO	7602	2102904422.3	5.6	721602345.8	3.2	5958201142.0	12.4
VERNAL	7290	-1631473013.7	24.8	-4589128839.1	61.7	4106759809.3	52.7
VNDNBERG	7223	-2678094367.5	4.3	-4525451098.4	9.2	3597409938.7	7.6
WESTFORD	7209	1492206951.6	0.0	-4458130458.9	0.0	4296015358.6	0.0
WETTZELL	7224	4075540247.0	9.4	931735038.1	5.3	4801629118.6	12.0
WHTHORSE	7284	-2215213263.2	32.4	-2209261635.9	31.9	5540292595.2	77.2
YAKATAGA	7277	-2529743855.9	39.3	-1942091444.1	31.1	5505027566.4	82.9
YELLOWKN	7285	-1224124155.3	59.6	-2689530475.6	128.0	5633555003.5	268.2
YUMA	7894	-2196777642.5	16.3	-4887337000.1	36.1	3448425208.2	25.4

TABLE 5.3
SITE POSITIONS FOR 1981

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035089.9	12.6	-4346132167.9	48.8	4561970991.2	46.8
AUSTINTX	7271	-737793572.4	3.6	-5459892245.2	16.0	3202990430.1	9.4
BERMUDA	7294	2307209717.6	4.6	-4874215779.2	9.9	3394317709.3	6.6
BLKBUTTE	7269	-2306306705.2	21.6	-4787914508.6	44.8	3515736451.4	31.9
BLOOMIND	7291	302384706.0	10.2	-4941699005.7	34.7	4007908384.2	28.9
BREST	7604	4228877341.8	8.8	-333104425.1	2.9	4747180711.6	10.2
CARNUSTY	7603	3526416633.5	10.4	-171421328.2	3.8	5294098599.1	14.4
CARROLGA	7228	453520865.5	9.3	-5300506731.6	35.3	3507207330.3	21.6
CHLBOLTN	7215	4008310330.0	9.6	-100650982.6	5.5	4943794503.4	12.5
DEADMANL	7267	-2336819207.5	66.2	-4732586639.4	128.9	3570329706.9	89.3
DSS15	7231	-2353538512.8	4.4	-4641649516.8	8.8	3676670027.4	7.5
DSS45	1642	-4460934767.7	103.3	2682765747.3	69.0	-3674382005.1	61.6
DSS65	1665	4849336642.0	91.8	-360489017.5	34.3	4114748115.5	95.4
EFLSBERG	7203	4033947761.8	9.0	486990290.2	5.6	4900430526.5	12.4
ELY	7286	-2077236034.8	17.1	-4486712725.2	36.8	4018753761.6	30.6
FLAGSTAF	7261	-1923992379.5	22.0	-4850854403.9	54.0	3658589204.8	39.4
FORT ORD	7266	-2697026413.2	21.1	-4354393523.5	34.2	3788077396.3	29.2
FORTORDS	7241	-2699839406.9	257.7	-4359126669.1	407.8	3781050260.6	326.9
FTD 7900	7900	-1324227705.9	3.6	-5332063010.2	12.8	3232023014.0	7.6
GILCREEK	7225	-2281546849.9	4.6	-1453645018.1	6.3	5756993205.7	9.4
GOLDVENU	1513	-2351128870.4	4.6	-4655477113.1	9.4	3660956886.2	8.2
GORF7102	7102	1130686837.0	2.9	-4831352987.8	10.2	3994110778.1	8.5
GRASSE	7605	4581697917.1	6.7	556125500.3	2.6	4389351160.3	7.5
HALEAKAL	7120	-5465998285.3	14.1	-2404409037.6	7.4	2242228165.8	7.1
HARTRAO	7232	5085442877.2	57.8	2668263266.3	35.5	-2768697386.9	26.5
HATCREEK	7218	-2523969649.1	3.8	-4123506395.7	8.0	4147752581.8	7.4
HAYSTACK	7205	1492405069.3	1.2	-4457266458.0	2.9	4296881586.8	2.9
HOBART26	7242	-3950236122.9	13.7	2522347549.6	12.8	-4311563206.0	11.4
HOHENFRG	7600	3778215155.7	5.7	698644544.6	2.3	5074053348.7	7.6
HRAS 085	7216	-1324210725.0	1.2	-5332023143.0	5.6	3232118363.3	4.4
JPL MV1	7263	-2493305614.6	13.0	-4655197733.9	24.5	3565519216.3	18.3
KASHIMA	1856	-3997892223.7	11.8	3276581242.7	7.4	3724118393.1	19.1
KAUAI	1311	-5543845847.3	4.3	-2054564631.6	7.8	2387813558.7	7.4
KODIAK	7278	-3026939860.5	35.5	-1575911840.5	20.4	5370362420.2	60.1
KWAJAL26	4968	-6143536629.5	27.9	1363996726.3	12.8	1034707227.9	19.0
LEONRDOK	7292	-522231333.6	3.6	-5145676857.3	18.7	3720152296.6	12.4
MAMMOTHL	7259	-2448246506.3	29.5	-4426738458.6	52.0	3875435918.1	43.6
MARPOINT	7217	1106629635.4	3.9	-4882907163.3	13.6	3938086844.3	11.2
MCD 7850	7850	-1330007914.0	2.8	-5328391532.3	10.3	3236502695.8	6.3
MEDICINA	7230	4461370323.5	42.6	919596630.4	19.1	4449558892.9	46.3
METSHOVI	7601	2890653075.7	7.6	1310295130.2	4.3	5513958490.2	12.3
MILESMON	7038	-1204438731.2	9.2	-4239211082.0	29.1	4596266039.5	29.4
MOJ 7288	7288	-2356493861.3	5.8	-4646607673.3	11.0	3668426636.7	8.4
MOJAVE12	7222	-2356170736.0	1.9	-4646755931.5	6.4	3668470581.5	5.4
MON PEAK	7274	-2386289026.2	8.7	-4802346774.2	17.9	3444883847.6	12.9

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168051.1	37.8	3428273940.7	33.5	3723697763.2	35.8
NOME	7279	-2658150162.3	40.2	-693821890.8	16.7	5737236682.3	89.2
NOTO	7547	4934563381.2	246.0	1321200997.5	105.3	3806484101.7	219.2
NRAO 140	7204	882880212.5	1.5	-4924482276.8	5.5	3944130543.5	4.6
NRAO85 3	7214	882325888.8	2.5	-4925137924.0	10.0	3943397514.7	7.8
OCOTILLO	7270	-2335600878.8	12.6	-4832244224.1	25.7	3434392537.9	18.1
ONSALA60	7213	3370606331.3	7.4	711917300.8	4.3	5349830480.1	10.4
OVR 7853	7853	-2410420978.7	3.8	-4477800409.4	6.9	3838690343.0	5.6
OVRO 130	7207	-2409600477.2	1.9	-4478349595.0	6.8	3838603193.0	5.9
PBLOSSOM	7254	-2464070636.8	18.5	-4649425801.8	35.2	3593905656.0	26.3
PENTICTN	7283	-2058839942.6	128.4	-3621286242.0	217.1	4814420448.1	275.2
PIETOWN	7234	-1640953399.3	1.2	-5014815964.8	3.3	3575411892.6	2.7
PINFLATS	7256	-2369635633.2	17.1	-4761325047.3	35.2	3511116061.2	25.2
PLATTVIL	7258	-1240707858.3	6.5	-4720454317.3	21.2	4094481609.7	17.8
PRESIDIO	7252	-2707704575.1	17.8	-4257609787.5	28.3	3888374078.5	25.5
PT REYES	7251	-2732332796.6	23.0	-4217635112.2	34.3	3914490882.8	31.8
PVERDES	7268	-2525452480.9	35.4	-4670035933.1	63.5	3522886673.5	46.6
QUINCY	7221	-2517230597.6	12.8	-4198595270.8	21.4	4076531266.6	20.0
RICHMOND	7219	961258290.0	.8	-5674089990.0	1.7	2740533642.7	1.5
ROBLED32	1561	4849245454.0	48.6	-360278402.9	11.5	4114884253.0	40.8
SANPAULA	7255	-2554476279.8	30.3	-4608627512.5	55.3	3582138136.1	41.0
SEATTLE1	7229	-2295347726.2	16.3	-3638029484.0	26.8	4693408745.7	31.6
SESHAN25	7227	-2831686504.8	56.9	4675734026.4	75.9	3275327979.1	63.6
SHANGHAI	7226	-2847697954.8	124.0	4659872964.9	107.9	3283958958.5	96.8
SNDPOINT	7280	-3425461579.3	43.4	-1214669163.4	18.4	5223858268.4	63.6
SOURDOGH	7281	-2419993146.6	23.8	-1664228715.3	17.6	5643538254.8	54.7
TROMSONO	7602	2102904403.3	5.6	721602356.2	3.2	5958201147.4	12.4
VERNAL	7290	-1631473031.9	21.8	-4589128848.9	54.3	4106759808.6	46.4
VNDNBERG	7223	-2678094397.7	3.8	-4525451064.4	8.0	3597409955.1	6.7
WESTFORD	7209	1492206933.3	0.0	-4458130461.8	0.0	4296015362.0	0.0
WETTZELL	7224	4075540226.6	8.1	931735051.4	4.6	4801629126.4	10.5
WHTHORSE	7284	-2215213289.1	28.7	-2209261632.5	28.2	5540292578.8	68.4
YAKATAGA	7277	-2529743885.1	33.7	-1942091428.8	26.7	5505027612.5	71.1
YELLOWKN	7285	-1224124184.5	48.3	-2689530501.4	103.9	5633555047.0	217.7
YUMA	7894	-2196777661.0	14.1	-4887337007.2	31.2	3448425202.7	22.0

TABLE 5.4
SITE POSITIONS FOR 1982

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035072.7	9.7	-4346132178.0	37.4	4561970998.4	35.9
AUSTINTX	7271	-737793586.5	3.6	-5459892246.8	16.0	3202990424.0	9.4
BERMUDA	7294	2307209702.9	4.6	-4874215781.8	9.9	3394317715.6	6.6
BLKBUTTE	7269	-2306306721.4	18.3	-4787914496.9	37.8	3515736436.6	26.9
BLOOMIND	7291	302384688.8	10.2	-4941699008.1	34.7	4007908382.5	28.9
BREST	7604	4228877329.8	8.8	-333104408.1	2.9	4747180723.5	10.2
CARNUSTY	7603	3526416619.4	10.4	-171421313.3	3.8	5294098609.0	14.4
CARROLGA	7228	453520850.2	9.3	-5300506733.8	35.3	3507207329.1	21.6
CHLBOLTN	7215	4008310316.7	9.6	-100650966.3	5.5	4943794514.6	12.5
DEADMANL	7267	-2336819253.6	56.4	-4732586688.0	109.8	3570329737.9	76.1
DSS15	7231	-2353538528.6	4.4	-4641649518.3	8.8	3676670015.4	7.5
DSS45	1642	-4460934808.7	91.1	2682765753.3	60.7	-3674381952.5	54.2
DSS65	1665	4849336662.0	80.5	-360489003.7	30.0	4114748175.7	83.6
EFLSBERG	7203	4033947749.0	9.2	486990303.6	5.1	4900430539.7	12.2
ELY	7286	-2077236054.4	14.8	-4486712723.5	31.8	4018753749.6	26.5
FLAGSTAF	7261	-1923992403.0	18.5	-4850854422.8	45.4	3658589209.8	33.1
FORT ORD	7266	-2697026444.8	17.8	-4354393494.6	28.8	3788077417.0	24.7
FORTORDS	7241	-2699839499.7	225.9	-4359126717.3	357.5	3781050341.2	286.5
FTD 7900	7900	-1324227720.1	3.6	-5332063011.7	12.8	3232023005.7	7.6
GILCREEK	7225	-2281546875.5	4.0	-1453645022.5	5.4	5756993200.4	8.0
GOLDVENU	1513	-2351128888.2	3.8	-4655477108.9	7.8	3660956880.1	6.9
GORF7102	7102	1130686819.9	2.9	-4831352990.3	10.2	3994110779.8	8.5
GRASSE	7605	4581697903.0	6.7	556125518.3	2.6	4389351172.7	7.5
HALEAKAL	7120	-5465998300.6	14.1	-2404408970.4	7.4	2242228200.7	7.1
HARTRAO	7232	5085442861.0	49.6	2668263288.0	30.4	-2768697372.3	22.8
HATCREEK	7218	-2523969670.4	3.3	-4123506390.7	6.9	4147752574.3	6.4
HAYSTACK	7205	1492405052.4	1.0	-4457266462.8	2.4	4296881591.4	2.4
HOBART26	7242	-3950236160.7	13.7	2522347556.3	12.8	-4311563167.5	11.4
HOHENFRG	7600	3778215139.2	5.7	698644560.2	2.3	5074053358.8	7.6
HRAS 085	7216	-1324210738.6	1.0	-5332023140.1	4.8	3232118353.7	3.8
JPL MV1	7263	-2493305649.2	10.9	-4655197714.9	20.5	3565519223.5	15.4
KASHIMA	1856	-3997892222.5	10.0	3276581244.9	6.3	3724118383.8	16.2
KAUAI	1311	-5543845857.7	3.9	-2054564567.1	6.6	2387813590.1	6.5
KODIAK	7278	-3026939886.1	30.6	-1575911835.2	17.6	5370362425.0	51.9
KWAJAL26	4968	-6143536601.9	23.3	1363996795.4	10.8	1034707254.0	16.2
LEONRDOK	7292	-522231349.7	3.6	-5145676859.3	18.7	3720152291.6	12.4
MAMMOTHL	7259	-2448246522.4	23.9	-4426738434.4	42.1	3875435901.3	35.3
MARPOINT	7217	1106629616.9	3.4	-4882907164.2	11.8	3938086843.1	9.7
MCD 7850	7850	-1330007928.3	2.8	-5328391533.8	10.3	3236502687.4	6.3
MEDICINA	7230	4461370304.5	37.1	919596639.5	16.7	4449558906.5	40.3
METSHOVI	7601	2890653056.0	7.6	1310295143.0	4.3	5513958497.5	12.3
MILESMON	7038	-1204438750.6	9.2	-4239211084.4	29.1	4596266032.2	29.4
MOJ 7288	7288	-2356493877.0	5.8	-4646607674.8	11.0	3668426624.6	8.4
MOJAVE12	7222	-2356170752.6	1.7	-4646755925.5	5.5	3668470575.4	4.6
MON PEAK	7274	-2386289061.8	7.4	-4802346746.1	15.2	3444883855.5	11.0

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168065.1	37.8	3428273939.6	33.5	3723697749.8	35.8
NOME	7279	-2658150179.1	31.9	-693821891.8	13.4	5737236663.4	71.1
NOTO	7547	4934563370.2	217.2	1321201017.5	93.0	3806484120.7	193.5
NRAO 140	7204	882880195.1	1.3	-4924482278.3	4.8	3944130544.8	4.0
NRAO85 3	7214	882325871.8	2.5	-4925137926.4	10.0	3943397515.4	7.8
OCOTILLO	7270	-2335600893.6	12.6	-4832244225.5	25.7	3434392525.9	18.1
ONSALA60	7213	3370606314.4	6.3	711917312.2	3.7	5349830489.8	8.9
OVR 7853	7853	-2410420995.1	3.8	-4477800411.0	6.9	3838690330.9	5.6
OVRO 130	7207	-2409600496.4	1.6	-4478349588.3	5.8	3838603186.2	5.1
PBLOSSOM	7254	-2464070658.2	15.3	-4649425777.8	29.2	3593905652.3	21.9
PENTICTN	7283	-2058840001.8	99.8	-3621286267.5	168.7	4814420495.7	214.0
PIETOWN	7234	-1640953414.8	1.2	-5014815966.5	3.3	3575411883.1	2.7
PINFLATS	7256	-2369635658.9	14.3	-4761325029.0	29.5	3511116062.9	21.2
PLATTVIL	7258	-1240707877.7	5.5	-4720454322.3	18.1	4094481604.4	15.2
PRESIDIO	7252	-2707704598.1	15.3	-4257609762.2	24.3	3888374084.2	21.9
PT REYES	7251	-2732332820.6	19.7	-4217635081.9	29.5	3914490897.5	27.3
PVERDES	7268	-2525452506.8	30.5	-4670035896.3	54.7	3522886675.7	40.2
QUINCY	7221	-2517230620.3	11.1	-4198595264.9	18.5	4076531259.2	17.3
RICHMOND	7219	961258277.5	.7	-5674089992.2	1.6	2740533642.8	1.3
ROBLED32	1561	4849245443.9	48.6	-360278384.1	11.5	4114884266.6	40.8
SANPAULA	7255	-2554476316.8	26.1	-4608627495.0	47.8	3582138149.6	35.4
SEATTLE1	7229	-2295347745.8	16.3	-3638029486.1	26.8	4693408734.5	31.6
SESHAN25	7227	-2831686520.5	49.7	4675733997.5	66.4	3275327956.5	55.5
SHANGHAI	7226	-2847697979.8	124.0	4659872957.0	107.9	3283958948.1	96.8
SNDPOINT	7280	-3425461608.0	37.8	-1214669160.7	16.0	5223858264.2	55.4
SOURDOGH	7281	-2419993175.9	19.4	-1664228722.2	14.4	5643538251.2	44.6
TROMSONO	7602	2102904384.4	5.6	721602366.6	3.2	5958201152.8	12.4
VERNAL	7290	-1631473050.1	18.8	-4589128858.7	47.0	4106759807.9	40.2
VNDNBERG	7223	-2678094427.7	3.3	-4525451030.5	6.8	3597409971.5	5.8
WESTFORD	7209	1492206915.1	0.0	-4458130464.6	0.0	4296015365.3	0.0
WETTZELL	7224	4075540206.3	6.9	931735064.6	4.0	4801629134.2	9.0
WHTHORSE	7284	-2215213315.1	25.0	-2209261629.1	24.5	5540292562.4	59.6
YAKATAGA	7277	-2529743914.1	28.2	-1942091413.5	22.3	5505027658.5	59.5
YELLOWKN	7285	-1224124213.6	37.2	-2689530527.0	79.9	5633555090.3	167.5
YUMA	7894	-2196777679.5	11.9	-4887337014.3	26.4	3448425197.2	18.6

TABLE 5.5
SITE POSITIONS FOR 1983

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035055.5	6.8	-4346132188.1	26.2	4561971005.5	25.2
AUSTINTX	7271	-737793600.6	3.6	-5459892248.5	16.0	3202990417.9	9.4
BERMUDA	7294	2307209688.2	4.6	-4874215784.3	9.9	3394317722.0	6.6
BLKBUTTE	7269	-2306306737.6	14.9	-4787914485.2	31.0	3515736421.9	22.1
BLOOMIND	7291	302384671.6	10.2	-4941699010.5	34.7	4007908380.9	28.9
BREST	7604	4228877317.8	8.8	-333104391.1	2.9	4747180735.4	10.2
CARNUSTY	7603	3526416605.4	10.4	-171421298.5	3.8	5294098618.8	14.4
CARROLGA	7228	453520835.0	9.3	-5300506735.9	35.3	3507207327.9	21.6
CHLBOLTN	7215	4008310303.3	9.6	-100650949.9	5.5	4943794525.7	12.5
DEADMANL	7267	-2336819299.7	46.6	-4732586736.5	90.8	3570329768.8	62.9
DSS15	7231	-2353538544.4	4.4	-4641649519.8	8.8	3676670003.4	7.5
DSS45	1642	-4460934849.6	78.8	2682765759.2	52.3	-3674381899.9	46.7
DSS65	1665	4849336682.0	69.1	-360488989.8	25.8	4114748235.9	71.8
EFLSBERG	7203	4033947736.3	11.7	486990317.0	5.7	4900430552.9	15.2
ELY	7286	-2077236073.9	12.5	-4486712721.9	26.8	4018753737.5	22.4
FLAGSTAF	7261	-1923992426.6	15.0	-4850854441.6	36.8	3658589214.8	26.8
FORT ORD	7266	-2697026476.5	14.5	-4354393465.7	23.6	3788077437.8	20.2
FORTORDS	7241	-2699839592.6	194.1	-4359126765.5	307.2	3781050421.8	246.1
FTD 7900	7900	-1324227734.3	3.6	-5332063013.2	12.8	3232022997.4	7.6
GILCREEK	7225	-2281546901.2	3.3	-1453645027.0	4.5	5756993195.0	6.7
GOLDVENU	1513	-2351128905.9	3.1	-4655477104.6	6.4	3660956873.9	5.7
GORF7102	7102	1130686802.8	2.9	-4831352992.9	10.2	3994110781.5	8.5
GRASSE	7605	4581697889.0	6.7	556125536.3	2.6	4389351185.0	7.5
HALEAKAL	7120	-5465998315.9	14.1	-2404408903.1	7.4	2242228235.6	7.1
HARTRAO	7232	5085442844.8	41.5	2668263309.8	25.4	-2768697357.7	19.1
HATCREEK	7218	-2523969691.7	2.8	-4123506385.7	5.8	4147752566.8	5.4
HAYSTACK	7205	1492405035.5	.8	-4457266467.5	2.1	4296881595.9	2.0
HOBART26	7242	-3950236198.5	13.7	2522347563.0	12.8	-4311563129.0	11.4
HOHENFRG	7600	3778215122.8	5.7	698644575.9	2.3	5074053368.8	7.6
HRAS 085	7216	-1324210752.1	.9	-5332023137.2	4.0	3232118344.2	3.3
JPL MV1	7263	-2493305683.8	8.9	-4655197695.9	16.7	3565519230.6	12.6
KASHIMA	1856	-3997892221.4	8.3	3276581247.1	5.2	3724118374.4	13.4
KAUAI	1311	-5543845868.1	3.6	-2054564502.6	5.4	2387813621.5	5.6
KODIAK	7278	-3026939911.7	25.8	-1575911829.9	14.8	5370362429.7	43.7
KWAJAL26	4968	-6143536574.3	18.7	1363996864.6	8.7	1034707280.1	13.4
LEONRDOK	7292	-522231365.8	3.6	-5145676861.3	18.7	3720152286.6	12.4
MAMMOTHL	7259	-2448246538.5	18.5	-4426738410.1	32.6	3875435884.5	27.3
MARPOINT	7217	1106629598.3	2.9	-4882907165.0	10.0	3938086841.9	8.3
MCD 7850	7850	-1330007942.5	2.8	-5328391535.3	10.3	3236502679.0	6.3
MEDICINA	7230	4461370285.4	31.6	919596648.7	14.2	4449558920.2	34.3
METSHOVI	7601	2890653036.3	7.6	1310295155.8	4.3	5513958504.8	12.3
MILESMON	7038	-1204438769.9	9.2	-4239211086.7	29.1	4596266025.0	29.4
MOJ 7288	7288	-2356493892.8	5.8	-4646607676.4	11.0	3668426612.5	8.4
MOJAVE12	7222	-2356170769.2	1.4	-4646755919.6	4.6	3668470569.3	4.0
MON PEAK	7274	-2386289097.4	6.1	-4802346718.0	12.5	3444883863.5	9.1

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168079.1	37.8	3428273938.4	33.5	3723697736.3	35.8
NOME	7279	-2658150195.8	23.8	-693821892.8	10.2	5737236644.5	53.2
NOTO	7547	4934563359.1	188.4	1321201037.5	80.7	3806484139.7	167.9
NRAO 140	7204	882880177.7	1.1	-4924482279.8	4.3	3944130546.0	3.5
NRAO85 3	7214	882325854.9	2.5	-4925137928.9	10.0	3943397516.1	7.8
OCOTILLO	7270	-2335600908.5	12.6	-4832244226.9	25.7	3434392513.8	18.1
ONSALA60	7213	3370606297.5	5.2	711917323.6	3.1	5349830499.5	7.5
OVR 7853	7853	-2410421011.5	3.8	-4477800412.6	6.9	3838690318.7	5.6
OVRO 130	7207	-2409600515.6	1.3	-4478349581.5	4.8	3838603179.5	4.3
PBLOSSOM	7254	-2464070679.5	12.3	-4649425753.8	23.3	3593905648.7	17.6
PENTICTN	7283	-2058840061.0	71.4	-3621286293.1	120.6	4814420543.2	153.0
PIETOWN	7234	-1640953430.3	1.2	-5014815968.1	3.3	3575411873.7	2.7
PINFLATS	7256	-2369635684.6	11.6	-4761325010.6	23.9	3511116064.5	17.2
PLATTVIL	7258	-1240707897.2	4.5	-4720454327.3	15.0	4094481599.1	12.7
PRESIDIO	7252	-2707704621.2	12.8	-4257609736.9	20.3	3888374089.8	18.3
PT REYES	7251	-2732332844.6	16.5	-4217635051.6	24.7	3914490912.3	22.9
PVERDES	7268	-2525452532.7	25.6	-4670035859.5	46.0	3522886678.0	33.8
QUINCY	7221	-2517230643.1	9.3	-4198595259.1	15.5	4076531251.8	14.6
RICHMOND	7219	961258265.0	.7	-5674089994.3	1.5	2740533643.0	1.3
ROBED32	1561	4849245433.7	48.6	-360278365.3	11.5	4114884280.3	40.8
SANPAULA	7255	-2554476353.8	22.0	-4608627477.5	40.3	3582138163.1	29.9
SEATTLE1	7229	-2295347765.4	16.3	-3638029488.2	26.8	4693408723.2	31.6
SESHAN25	7227	-2831686536.1	42.6	4675733968.6	56.9	3275327933.8	47.4
SHANGHAI	7226	-2847698004.8	124.0	4659872949.0	107.9	3283958937.7	96.8
SNDPOINT	7280	-3425461636.6	32.3	-1214669158.0	13.6	5223858260.0	47.2
SOURDOGH	7281	-2419993205.2	15.0	-1664228729.1	11.3	5643538247.5	34.7
TROMSONO	7602	2102904365.4	5.6	721602377.0	3.2	5958201158.3	12.4
VERNAL	7290	-1631473068.3	15.9	-4589128868.5	39.7	4106759807.2	33.9
VNDNBERG	7223	-2678094457.8	2.8	-4525450996.6	5.7	3597409987.9	4.9
WESTFORD	7209	1492206896.9	0.0	-4458130467.5	0.0	4296015368.7	0.0
WETTZELL	7224	4075540185.9	5.8	931735077.9	3.3	4801629142.0	7.6
WHTHORSE	7284	-2215213341.0	21.3	-2209261625.7	20.9	5540292546.1	50.8
YAKATAGA	7277	-2529743943.2	22.7	-1942091398.2	18.0	5505027704.5	47.9
YELLOWKN	7285	-1224124242.7	26.1	-2689530552.7	56.1	5633555133.6	117.7
YUMA	7894	-2196777698.0	9.8	-4887337021.4	21.7	3448425191.8	15.3

TABLE 5.6
SITE POSITIONS FOR 1984

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035038.3	4.0	-4346132198.1	15.2	4561971012.7	14.7
AUSTINTX	7271	-737793614.7	3.6	-5459892250.2	16.0	3202990411.9	9.4
BERMUDA	7294	2307209673.4	4.6	-4874215786.8	9.9	3394317728.4	6.6
BLKBUTTE	7269	-2306306753.8	11.7	-4787914473.5	24.2	3515736407.1	17.3
BLOOMIND	7291	302384654.4	10.2	-4941699012.9	34.7	4007908379.2	28.9
BREST	7604	4228877305.8	8.8	-333104374.1	2.9	4747180747.3	10.2
CARNUSTY	7603	3526416591.3	10.4	-171421283.5	3.8	5294098628.7	14.4
CARROLGA	7228	453520819.7	9.3	-5300506738.0	35.3	3507207326.6	21.6
CHLBOLTN	7215	4008310290.0	9.6	-100650933.6	5.5	4943794536.9	12.5
DEADMANL	7267	-2336819345.8	36.9	-4732586785.0	71.9	3570329799.7	49.8
DSS15	7231	-2353538560.2	4.4	-4641649521.4	8.8	3676669991.3	7.5
DSS45	1642	-4460934890.6	66.6	2682765765.2	44.0	-3674381847.4	39.3
DSS65	1665	4849336702.1	57.7	-360488976.0	21.6	4114748296.0	60.0
EFLSBERG	7203	4033947723.6	15.5	486990330.4	7.1	4900430566.0	20.0
ELY	7286	-2077236093.5	10.2	-4486712720.3	22.0	4018753725.4	18.3
FLAGSTAF	7261	-1923992450.1	11.6	-4850854460.5	28.5	3658589219.8	20.8
FORT ORD	7266	-2697026508.1	11.4	-4354393436.8	18.5	3788077458.5	15.9
FORTORDS	7241	-2699839685.4	162.4	-4359126813.7	256.9	3781050502.5	205.8
FTD 7900	7900	-1324227748.5	3.6	-5332063014.7	12.8	3232022989.0	7.6
GILCREEK	7225	-2281546926.9	2.7	-1453645031.4	3.6	5756993189.7	5.4
GOLDVENU	1513	-2351128923.7	2.5	-4655477100.4	5.1	3660956867.8	4.6
GORF7102	7102	1130686785.7	2.9	-4831352995.5	10.2	3994110783.2	8.5
GRASSE	7605	4581697875.0	6.7	556125554.4	2.6	4389351197.4	7.5
HALEAKAL	7120	-5465998331.2	14.1	-2404408835.8	7.4	2242228270.4	7.1
HARTRAO	7232	5085442828.6	33.6	2668263331.5	20.4	-2768697343.1	15.5
HATCREEK	7218	-2523969713.1	2.3	-4123506380.7	4.6	4147752559.4	4.5
HAYSTACK	7205	1492405018.7	.8	-4457266472.3	1.9	4296881600.5	1.9
HOBART26	7242	-3950236236.3	13.7	2522347569.6	12.8	-4311563090.5	11.4
HOHENFRG	7600	3778215106.4	5.7	698644591.5	2.3	5074053378.9	7.6
HRAS 085	7216	-1324210765.7	.8	-5332023134.4	3.2	3232118334.6	2.7
JPL MV1	7263	-2493305718.4	6.9	-4655197676.9	13.0	3565519237.8	9.9
KASHIMA	1856	-3997892220.2	6.6	3276581249.3	4.2	3724118365.1	10.6
KAUAI	1311	-5543845878.5	3.3	-2054564438.2	4.3	2387813652.9	4.8
KODIAK	7278	-3026939937.4	21.0	-1575911824.5	12.0	5370362434.5	35.6
KWAJAL26	4968	-6143536546.7	14.4	1363996933.7	6.8	1034707306.3	10.7
LEONRDOK	7292	-522231381.9	3.6	-5145676863.3	18.7	3720152281.5	12.4
MAMMOTHL	7259	-2448246554.5	13.5	-4426738385.8	23.7	3875435867.7	20.0
MARPOINT	7217	1106629579.8	2.4	-4882907165.8	8.5	3938086840.7	7.0
MCD 7850	7850	-1330007956.7	2.8	-5328391536.9	10.3	3236502670.7	6.3
MEDICINA	7230	4461370266.4	26.1	919596657.8	11.8	4449558933.9	28.4
METSHOVI	7601	2890653016.5	7.6	1310295168.7	4.3	5513958512.1	12.3
MILESMON	7038	-1204438789.3	9.2	-4239211089.1	29.1	4596266017.8	29.4
MOJ 7288	7288	-2356493908.6	5.8	-4646607677.9	11.0	3668426600.5	8.4
MOJAVE12	7222	-2356170785.8	1.2	-4646755913.7	3.7	3668470563.1	3.3
MON PEAK	7274	-2386289132.9	4.9	-4802346690.0	10.0	3444883871.5	7.3

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168093.1	37.8	3428273937.2	33.5	3723697722.9	35.8
NOME	7279	-2658150212.5	16.0	-693821893.8	7.1	5737236625.6	35.9
NOTO	7547	4934563348.1	159.6	1321201057.5	68.3	3806484158.6	142.3
NRAO 140	7204	882880160.3	1.1	-4924482281.2	4.1	3944130547.2	3.3
NRAO85 3	7214	882325838.0	2.5	-4925137931.4	10.0	3943397516.8	7.8
OCOTILLO	7270	-2335600923.4	12.6	-4832244228.3	25.7	3434392501.7	18.1
ONSALA60	7213	3370606280.6	4.2	711917334.9	2.5	5349830509.2	6.1
OVR 7853	7853	-2410421027.9	3.8	-4477800414.2	6.9	3838690306.5	5.6
OVRO 130	7207	-2409600534.8	1.1	-4478349574.7	3.8	3838603172.7	3.6
PBLOSSOM	7254	-2464070700.9	9.4	-4649425729.8	17.8	3593905645.0	13.5
PENTICTN	7283	-2058840120.2	43.3	-3621286318.6	73.1	4814420590.7	93.0
PIETOWN	7234	-1640953445.8	1.2	-5014815969.7	3.3	3575411864.3	2.7
PINFLATS	7256	-2369635710.3	8.9	-4761324992.2	18.4	3511116066.2	13.3
PLATTVIL	7258	-1240707916.6	3.6	-4720454332.3	12.1	4094481593.8	10.2
PRESIDIO	7252	-2707704644.3	10.3	-4257609711.7	16.4	3888374095.5	14.9
PT REYES	7251	-2732332868.7	13.4	-4217635021.3	20.0	3914490927.0	18.6
PVERDES	7268	-2525452558.5	20.8	-4670035822.7	37.4	3522886680.2	27.5
QUINCY	7221	-2517230665.8	7.6	-4198595253.2	12.7	4076531244.4	12.0
RICHMOND	7219	961258252.6	.7	-5674089996.5	1.5	2740533643.1	1.2
ROBLED32	1561	4849245423.6	48.6	-360278346.5	11.5	4114884293.9	40.8
SANPAULA	7255	-2554476390.8	18.0	-4608627459.9	33.0	3582138176.7	24.5
SEATTLE1	7229	-2295347785.0	16.3	-3638029490.4	26.8	4693408712.0	31.6
SESHAN25	7227	-2831686551.8	35.5	4675733939.7	47.4	3275327911.2	39.4
SHANGHAI	7226	-2847698029.8	124.0	4659872941.0	107.9	3283958927.3	96.8
SNDPOINT	7280	-3425461665.3	26.8	-1214669155.3	11.2	5223858255.9	39.2
SOURDOGH	7281	-2419993234.4	10.9	-1664228735.9	8.3	5643538243.9	25.0
TROMSONO	7602	2102904346.5	5.6	721602387.4	3.2	5958201163.7	12.4
VERNAL	7290	-1631473086.4	13.0	-4589128878.3	32.4	4106759806.5	27.8
VNDNBERG	7223	-2678094487.9	2.2	-4525450962.7	4.6	3597410004.3	4.0
WESTFORD	7209	1492206878.7	0.0	-4458130470.3	0.0	4296015372.1	0.0
WETTZELL	7224	4075540165.5	4.6	931735091.2	2.7	4801629149.8	6.3
WHTHORSE	7284	-2215213366.9	17.6	-2209261622.3	17.3	5540292529.7	42.1
YAKATAGA	7277	-2529743972.3	17.3	-1942091383.0	13.7	5505027750.4	36.6
YELLOWKN	7285	-1224124271.8	15.3	-2689530578.3	32.9	5633555177.0	69.1
YUMA	7894	-2196777716.5	7.6	-4887337028.4	17.0	3448425186.3	12.0

TABLE 5.7
SITE POSITIONS FOR 1985

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035021.1	1.7	-4346132208.2	6.3	4561971019.9	6.0
AUSTINTX	7271	-737793628.9	3.6	-5459892251.8	16.0	3202990405.8	9.4
BERMUDA	7294	2307209658.7	4.6	-4874215789.4	9.9	3394317734.8	6.6
BLKBUTTE	7269	-2306306770.0	8.6	-4787914461.7	17.7	3515736392.3	12.7
BLOOMIND	7291	302384637.2	10.2	-4941699015.3	34.7	4007908377.6	28.9
BREST	7604	4228877293.8	8.8	-333104357.1	2.9	4747180759.2	10.2
CARNUSTY	7603	3526416577.2	10.4	-171421268.6	3.8	5294098638.5	14.4
CARROLGA	7228	453520804.3	9.3	-5300506740.2	35.3	3507207325.4	21.6
CHLBOLTN	7215	4008310276.6	9.6	-100650917.1	5.5	4943794548.0	12.5
DEADMANL	7267	-2336819392.0	27.2	-4732586833.6	53.1	3570329830.7	36.8
DSS15	7231	-2353538576.0	4.4	-4641649522.9	8.8	3676669979.2	7.5
DSS45	1642	-4460934931.7	54.3	2682765771.2	35.8	-3674381794.6	32.0
DSS65	1665	4849336722.2	46.3	-360488962.1	17.3	4114748356.4	48.1
EFLSBERG	7203	4033947710.8	19.8	486990343.9	9.0	4900430579.2	25.6
ELY	7286	-2077236113.2	8.0	-4486712718.7	17.2	4018753713.3	14.4
FLAGSTAF	7261	-1923992473.7	8.3	-4850854479.4	20.6	3658589224.9	15.0
FORT ORD	7266	-2697026539.9	8.4	-4354393407.8	13.7	3788077479.3	11.8
FORTORDS	7241	-2699839778.5	130.5	-4359126862.1	206.5	3781050583.3	165.3
FTD 7900	7900	-1324227762.7	3.6	-5332063016.3	12.8	3232022980.7	7.6
GILCREEK	7225	-2281546952.6	2.1	-1453645035.8	2.8	5756993184.4	4.2
GOLDVENU	1513	-2351128941.5	2.1	-4655477096.1	4.2	3660956861.6	3.9
GORF7102	7102	1130686768.5	2.9	-4831352998.1	10.2	3994110785.0	8.5
GRASSE	7605	4581697860.9	6.7	556125572.4	2.6	4389351209.8	7.5
HALEAKAL	7120	-5465998346.5	14.1	-2404408768.4	7.4	2242228305.4	7.1
HARTRAO	7232	5085442812.4	25.8	2668263353.3	15.6	-2768697328.5	12.1
HATCREEK	7218	-2523969734.4	1.8	-4123506375.7	3.6	4147752551.9	3.6
HAYSTACK	7205	1492405001.8	.8	-4457266477.0	2.1	4296881605.1	2.1
HOBART26	7242	-3950236274.1	13.7	2522347576.3	12.8	-4311563051.9	11.4
HOHENFRG	7600	3778215089.9	5.7	698644607.2	2.3	5074053389.0	7.6
HRAS 085	7216	-1324210779.3	.7	-5332023131.5	2.5	3232118325.1	2.3
JPL MV1	7263	-2493305753.1	5.2	-4655197657.9	9.8	3565519245.0	7.4
KASHIMA	1856	-3997892219.0	5.0	3276581251.5	3.2	3724118355.7	8.0
KAUAI	1311	-5543845888.9	2.9	-2054564373.5	3.3	2387813684.4	4.1
KODIAK	7278	-3026939963.0	16.3	-1575911819.2	9.3	5370362439.2	27.6
KWAJAL26	4968	-6143536519.1	10.6	1363997002.9	5.0	1034707332.5	8.1
LEONRDOK	7292	-522231398.0	3.6	-5145676865.3	18.7	3720152276.5	12.4
MAMMOTHL	7259	-2448246570.7	9.5	-4426738361.5	16.8	3875435850.8	14.2
MARPOINT	7217	1106629561.2	2.0	-4882907166.7	7.2	3938086839.5	5.8
MCD 7850	7850	-1330007970.9	2.8	-5328391538.4	10.3	3236502662.3	6.3
MEDICINA	7230	4461370247.3	20.6	919596666.9	9.3	4449558947.6	22.5
METSHOVI	7601	2890652996.7	7.6	1310295181.5	4.3	5513958519.5	12.3
MILESMON	7038	-1204438808.7	9.2	-4239211091.4	29.1	4596266010.5	29.4
MOJ 7288	7288	-2356493924.4	5.8	-4646607679.4	11.0	3668426588.4	8.4
MOJAVE12	7222	-2356170802.5	1.0	-4646755907.8	2.8	3668470557.0	2.7
MON PEAK	7274	-2386289168.6	3.7	-4802346661.8	7.6	3444883879.4	5.6

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168107.1	37.8	3428273936.0	33.5	3723697709.4	35.8
NOME	7279	-2658150229.3	9.2	-693821894.8	4.5	5737236606.7	20.7
NOTO	7547	4934563337.0	130.8	1321201077.6	56.0	3806484177.7	116.6
NRAO 140	7204	882880142.8	1.1	-4924482282.7	4.2	3944130548.5	3.4
NRAO85 3	7214	882325821.0	2.5	-4925137933.9	10.0	3943397517.5	7.8
OCOTILLO	7270	-2335600938.3	12.6	-4832244229.7	25.7	3434392489.6	18.1
ONSALA60	7213	3370606263.7	3.2	711917346.3	1.9	5349830518.9	4.9
OVR 7853	7853	-2410421044.4	3.8	-4477800415.8	6.9	3838690294.3	5.6
OVRO 130	7207	-2409600554.0	1.0	-4478349567.9	3.0	3838603166.0	2.9
PBLOSSOM	7254	-2464070722.3	6.9	-4649425705.7	13.0	3593905641.4	9.9
PENTICTN	7283	-2058840179.6	17.8	-3621286344.2	30.0	4814420638.4	38.1
PIETOWN	7234	-1640953461.3	1.2	-5014815971.4	3.3	3575411854.9	2.7
PINFLATS	7256	-2369635736.0	6.3	-4761324973.8	13.1	3511116067.8	9.5
PLATTVIL	7258	-1240707936.1	2.7	-4720454337.3	9.2	4094481588.5	7.8
PRESIDIO	7252	-2707704667.4	7.9	-4257609686.3	12.6	3888374101.2	11.5
PT REYES	7251	-2732332892.8	10.3	-4217634990.9	15.3	3914490941.7	14.4
PVERDES	7268	-2525452584.5	16.2	-4670035785.8	29.0	3522886682.5	21.4
QUINCY	7221	-2517230688.6	6.0	-4198595247.3	9.9	4076531237.0	9.4
RICHMOND	7219	961258240.1	.7	-5674089998.6	1.5	2740533643.2	1.1
ROBLED32	1561	4849245413.4	48.6	-360278327.7	11.5	4114884307.5	40.8
SANPAULA	7255	-2554476427.9	14.2	-4608627442.3	25.9	3582138190.2	19.3
SEATTLE1	7229	-2295347804.6	16.3	-3638029492.5	26.8	4693408700.7	31.6
SESHAN25	7227	-2831686567.5	28.4	4675733910.7	37.9	3275327888.5	31.4
SHANGHAI	7226	-2847698054.9	124.0	4659872933.0	107.9	3283958916.9	96.8
SNDPOINT	7280	-3425461694.1	21.3	-1214669152.6	8.9	5223858251.7	31.2
SOURDOGH	7281	-2419993263.8	7.0	-1664228742.8	5.5	5643538240.3	16.2
TROMSONO	7602	2102904327.5	5.6	721602397.8	3.2	5958201169.2	12.4
VERNAL	7290	-1631473104.6	10.1	-4589128888.1	25.3	4106759805.8	21.6
VNDNBERG	7223	-2678094518.1	1.7	-4525450928.7	3.5	3597410020.7	3.2
WESTFORD	7209	1492206860.4	0.0	-4458130473.2	0.0	4296015375.5	0.0
WETTZELL	7224	4075540145.1	3.5	931735104.5	2.0	4801629157.6	5.0
WHTHORSE	7284	-2215213392.9	14.0	-2209261619.0	13.7	5540292513.3	33.5
YAKATAGA	7277	-2529744001.4	12.1	-1942091367.6	9.6	5505027796.5	25.6
YELLOWKN	7285	-1224124301.0	6.5	-2689530604.0	13.9	5633555220.4	29.0
YUMA	7894	-2196777735.0	5.6	-4887337035.5	12.4	3448425180.8	8.9

TABLE 5.8
SITE POSITIONS FOR 1986

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918035003.8	2.6	-4346132218.3	10.5	4561971027.1	9.9
AUSTINTX	7271	-737793643.0	3.6	-5459892253.5	16.0	3202990399.7	9.4
BERMUDA	7294	2307209643.9	4.6	-4874215791.9	9.9	3394317741.2	6.6
BLKBUTTE	7269	-2306306786.2	5.8	-4787914450.0	11.9	3515736377.6	8.6
BLOOMIND	7291	302384620.0	10.2	-4941699017.7	34.7	4007908376.0	28.9
BREST	7604	4228877281.8	8.8	-333104340.1	2.9	4747180771.0	10.2
CARNUSTY	7603	3526416563.1	10.4	-171421253.7	3.8	5294098648.4	14.4
CARROLGA	7228	453520789.1	9.3	-5300506742.3	35.3	3507207324.1	21.6
CHLBOLTN	7215	4008310263.3	9.6	-100650900.8	5.5	4943794559.2	12.5
DEADMANL	7267	-2336819438.1	17.8	-4732586882.1	34.8	3570329861.6	24.2
DSS15	7231	-2353538591.8	4.4	-4641649524.4	8.8	3676669967.2	7.5
DSS45	1642	-4460934972.7	42.3	2682765777.2	27.7	-3674381742.0	24.8
DSS65	1665	4849336742.2	35.0	-360488948.2	13.1	4114748416.5	36.4
EFLSBERG	7203	4033947698.1	24.4	486990357.3	11.0	4900430592.4	31.7
ELY	7286	-2077236132.8	5.9	-4486712717.1	12.7	4018753701.2	10.6
FLAGSTAF	7261	-1923992497.3	5.7	-4850854498.2	13.9	3658589229.9	10.1
FORT ORD	7266	-2697026571.5	6.0	-4354393378.9	9.6	3788077500.1	8.4
FORTORDS	7241	-2699839871.4	98.8	-4359126910.3	156.2	3781050663.9	125.0
FTD 7900	7900	-1324227776.9	3.6	-5332063017.8	12.8	3232022972.3	7.6
GILCREEK	7225	-2281546978.2	1.5	-1453645040.3	2.0	5756993179.1	3.1
GOLDVENU	1513	-2351128959.3	2.0	-4655477091.9	3.9	3660956855.5	3.6
GORF7102	7102	1130686751.4	2.9	-4831353000.7	10.2	3994110786.7	8.5
GRASSE	7605	4581697846.8	6.7	556125590.4	2.6	4389351222.2	7.5
HALEAKAL	7120	-5465998361.8	14.1	-2404408701.1	7.4	2242228340.2	7.1
HARTRAO	7232	5085442796.2	18.6	2668263375.0	11.3	-2768697313.9	9.1
HATCREEK	7218	-2523969755.8	1.3	-4123506370.7	2.6	4147752544.4	2.8
HAYSTACK	7205	1492404984.9	1.0	-4457266481.8	2.5	4296881609.6	2.5
HOBART26	7242	-3950236311.9	13.7	2522347583.0	12.8	-4311563013.4	11.4
HOHENFRG	7600	3778215073.5	5.7	698644622.8	2.3	5074053399.1	7.6
HRAS 085	7216	-1324210792.9	.6	-5332023128.6	1.8	3232118315.5	1.9
JPL MV1	7263	-2493305787.7	3.9	-4655197638.9	7.4	3565519252.2	5.7
KASHIMA	1856	-3997892217.8	3.7	3276581253.7	2.4	3724118346.4	5.7
KAUAI	1311	-5543845899.3	2.7	-2054564309.0	2.5	2387813715.8	3.6
KODIAK	7278	-3026939988.6	11.7	-1575911813.9	6.7	5370362444.0	19.9
KWAJAL26	4968	-6143536491.5	7.9	1363997072.1	3.6	1034707358.6	6.1
LEONRDOK	7292	-522231414.1	3.6	-5145676867.3	18.7	3720152271.4	12.4
MAMMOTHL	7259	-2448246586.7	8.2	-4426738337.2	14.8	3875435834.0	12.7
MARPOINT	7217	1106629542.6	1.8	-4882907167.5	6.3	3938086838.3	5.0
MCD 7850	7850	-1330007985.1	2.8	-5328391539.9	10.3	3236502654.0	6.3
MEDICINA	7230	4461370228.2	15.2	919596676.1	6.9	4449558961.3	16.7
METSHOVI	7601	2890652977.0	7.6	1310295194.4	4.3	5513958526.7	12.3
MILESMON	7038	-1204438828.1	9.2	-4239211093.8	29.1	4596266003.3	29.4
MOJ 7288	7288	-2356493940.1	5.8	-4646607681.0	11.0	3668426576.3	8.4
MOJAVE12	7222	-2356170819.1	.8	-4646755901.9	2.0	3668470550.9	2.2
MON PEAK	7274	-2386289204.2	2.8	-4802346633.7	5.6	3444883887.4	4.3

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168121.0	37.8	3428273934.9	33.5	3723697696.0	35.8
NOME	7279	-2658150246.0	7.5	-693821895.8	3.4	5737236587.8	16.0
NOTO	7547	4934563326.0	102.0	1321201097.6	43.7	3806484196.6	91.0
NRAO 140	7204	882880125.4	1.2	-4924482284.2	4.6	3944130549.7	3.7
NRAO85 3	7214	882325804.1	2.5	-4925137936.4	10.0	3943397518.1	7.8
OCOTILLO	7270	-2335600953.2	12.6	-4832244231.1	25.7	3434392477.5	18.1
ONSALA60	7213	3370606246.8	2.3	711917357.7	1.4	5349830528.6	3.8
OVR 7853	7853	-2410421060.8	3.8	-4477800417.4	6.9	3838690282.1	5.6
OVRO 130	7207	-2409600573.2	1.0	-4478349561.1	2.4	3838603159.2	2.5
PBLOSSOM	7254	-2464070743.6	5.4	-4649425681.7	10.1	3593905637.7	7.7
PENTICTN	7283	-2058840238.8	20.3	-3621286369.8	34.8	4814420685.9	43.3
PIETOWN	7234	-1640953476.8	1.2	-5014815973.0	3.3	3575411845.4	2.7
PINFLATS	7256	-2369635761.7	4.1	-4761324955.4	8.5	3511116069.5	6.4
PLATTVIL	7258	-1240707955.6	2.0	-4720454342.3	6.8	4094481583.2	5.7
PRESIDIO	7252	-2707704690.5	5.7	-4257609661.0	9.0	3888374106.8	8.4
PT REYES	7251	-2732332916.8	7.4	-4217634960.6	11.0	3914490956.4	10.3
PVERDES	7268	-2525452610.3	11.8	-4670035749.0	21.2	3522886684.7	15.6
QUINCY	7221	-2517230711.3	4.5	-4198595241.5	7.4	4076531229.6	7.1
RICHMOND	7219	961258227.6	.7	-5674090000.8	1.4	2740533643.4	1.1
ROBLED32	1561	4849245403.2	48.6	-360278308.9	11.5	4114884321.1	40.8
SANPAULA	7255	-2554476464.9	10.6	-4608627424.8	19.4	3582138203.7	14.5
SEATTLE1	7229	-2295347824.2	16.3	-3638029494.6	26.8	4693408689.5	31.6
SESHAN25	7227	-2831686583.2	21.4	4675733881.8	28.5	3275327865.9	23.6
SHANGHAI	7226	-2847698080.0	124.0	4659872925.0	107.9	3283958906.5	96.8
SNDPOINT	7280	-3425461722.8	16.1	-1214669150.0	6.6	5223858247.5	23.5
SOURDOGH	7281	-2419993293.0	4.6	-1664228749.7	3.7	5643538236.6	10.5
TROMSONO	7602	2102904308.5	5.6	721602408.2	3.2	5958201174.6	12.4
VERNAL	7290	-1631473122.8	7.3	-4589128897.9	18.3	4106759805.1	15.7
VNDNBERG	7223	-2678094548.1	1.3	-4525450894.8	2.5	3597410037.1	2.5
WESTFORD	7209	1492206842.2	0.0	-4458130476.0	0.0	4296015378.8	0.0
WETTZELL	7224	4075540124.8	2.5	931735117.7	1.5	4801629165.4	3.9
WHTHORSE	7284	-2215213418.8	10.4	-2209261615.6	10.3	5540292496.9	25.2
YAKATAGA	7277	-2529744030.5	7.6	-1942091352.4	6.2	5505027842.5	16.1
YELLOWKN	7285	-1224124330.1	10.2	-2689530629.7	21.9	5633555263.7	45.2
YUMA	7894	-2196777753.5	3.7	-4887337042.6	8.3	3448425175.4	6.0

TABLE 5.9
SITE POSITIONS FOR 1987

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034986.6	5.3	-4346132228.4	21.0	4561971034.3	19.9
AUSTINTX	7271	-737793657.1	3.6	-5459892255.2	16.0	3202990393.6	9.4
BERMUDA	7294	2307209629.2	4.6	-4874215794.4	9.9	3394317747.6	6.6
BLKBUTTE	7269	-2306306802.4	4.2	-4787914438.3	8.5	3515736362.8	6.2
BLOOMIND	7291	302384602.8	10.2	-4941699020.0	34.7	4007908374.3	28.9
BREST	7604	4228877269.8	8.8	-333104323.1	2.9	4747180782.9	10.2
CARNUSTY	7603	3526416549.1	10.4	-171421238.8	3.8	5294098658.2	14.4
CARROLGA	7228	453520773.8	9.3	-5300506744.4	35.3	3507207322.9	21.6
CHLBOLTN	7215	4008310249.9	9.6	-100650884.4	5.5	4943794570.3	12.5
DEADMANL	7267	-2336819484.1	9.4	-4732586930.6	18.2	3570329892.5	12.9
DSS15	7231	-2353538607.6	4.4	-4641649526.0	8.8	3676669955.2	7.5
DSS45	1642	-4460935013.7	30.5	2682765783.1	19.9	-3674381689.4	17.8
DSS65	1665	4849336762.3	23.7	-360488934.4	8.9	4114748476.7	24.7
EFLSBERG	7203	4033947685.4	29.2	486990370.7	13.2	4900430605.5	37.9
ELY	7286	-2077236152.4	4.1	-4486712715.5	8.8	4018753689.1	7.4
FLAGSTAF	7261	-1923992520.8	4.6	-4850854517.1	11.0	3658589234.9	8.0
FORT ORD	7266	-2697026603.2	4.8	-4354393350.0	7.7	3788077520.8	6.7
FORTORDS	7241	-2699839964.2	67.1	-4359126958.5	106.0	3781050744.5	84.8
FTD 7900	7900	-1324227791.1	3.6	-5332063019.3	12.8	3232022964.0	7.6
GILCREEK	7225	-2281547003.9	1.1	-1453645044.7	1.6	5756993173.7	2.3
GOLDVENU	1513	-2351128977.1	2.3	-4655477087.7	4.3	3660956849.4	3.9
GORF7102	7102	1130686734.3	2.9	-4831353003.2	10.2	3994110788.4	8.5
GRASSE	7605	4581697832.8	6.7	556125608.5	2.6	4389351234.6	7.5
HALEAKAL	7120	-5465998377.1	14.1	-2404408633.8	7.4	2242228375.1	7.1
HARTRAO	7232	5085442780.0	12.8	2668263396.8	8.0	-2768697299.3	7.0
HATCREEK	7218	-2523969777.1	1.0	-4123506365.7	2.0	4147752537.0	2.3
HAYSTACK	7205	1492404968.0	1.2	-4457266486.5	3.0	4296881614.2	3.1
HOBART26	7242	-3950236349.7	13.7	2522347589.6	12.8	-4311562974.9	11.4
HOHENFRG	7600	3778215057.1	5.7	698644638.5	2.3	5074053409.2	7.6
HRAS 085	7216	-1324210806.5	.5	-5332023125.7	1.4	3232118306.0	1.6
JPL MV1	7263	-2493305822.3	3.8	-4655197619.9	6.9	3565519259.4	5.4
KASHIMA	1856	-3997892216.7	2.9	3276581255.9	1.9	3724118337.1	4.3
KAUAI	1311	-5543845909.7	2.5	-2054564244.5	2.2	2387813747.2	3.3
KODIAK	7278	-3026940014.3	7.6	-1575911808.5	4.4	5370362448.7	13.0
KWAJAL26	4968	-6143536463.9	7.8	1363997141.2	3.2	1034707384.8	5.0
LEONRDOK	7292	-522231430.2	3.6	-5145676869.3	18.7	3720152266.4	12.4
MAMMOTHL	7259	-2448246602.8	10.7	-4426738313.0	19.2	3875435817.1	16.5
MARPOINT	7217	1106629524.0	1.7	-4882907168.3	5.9	3938086837.1	4.6
MCD 7850	7850	-1330007999.4	2.8	-5328391541.5	10.3	3236502645.6	6.3
MEDICINA	7230	4461370209.2	9.9	919596685.2	4.6	4449558975.0	11.1
METSHOVI	7601	2890652957.3	7.6	1310295207.2	4.3	5513958534.0	12.3
MILESMON	7038	-1204438847.4	9.2	-4239211096.1	29.1	4596265996.0	29.4
MOJ 7288	7288	-2356493955.9	5.8	-4646607682.5	11.0	3668426564.3	8.4
MOJAVE12	7222	-2356170835.7	.6	-4646755896.0	1.5	3668470544.7	1.9
MON PEAK	7274	-2386289239.8	2.3	-4802346605.6	4.6	3444883895.4	3.5

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168135.0	37.8	3428273933.7	33.5	3723697682.5	35.8
NOME	7279	-2658150262.8	13.0	-693821896.7	5.1	5737236568.9	27.8
NOTO	7547	4934563315.0	73.2	1321201117.6	31.4	3806484215.6	65.4
NRAO 140	7204	882880108.0	1.4	-4924482285.7	5.3	3944130550.9	4.2
NRAO85 3	7214	882325787.2	2.5	-4925137938.9	10.0	3943397518.8	7.8
OCOTILLO	7270	-2335600968.1	12.6	-4832244232.5	25.7	3434392465.4	18.1
ONSALA60	7213	3370606229.9	1.8	711917369.1	1.1	5349830538.2	3.2
OVR 7853	7853	-2410421077.2	3.8	-4477800419.0	6.9	3838690270.0	5.6
OVRO 130	7207	-2409600592.4	1.1	-4478349554.3	2.3	3838603152.5	2.4
PBLOSSOM	7254	-2464070765.0	5.7	-4649425657.7	10.7	3593905634.0	8.0
PENTICTN	7283	-2058840298.0	46.4	-3621286395.3	79.1	4814420733.4	99.4
PIETOWN	7234	-1640953492.3	1.2	-5014815974.7	3.3	3575411836.0	2.7
PINFLATS	7256	-2369635787.4	3.1	-4761324937.0	6.3	3511116071.1	4.8
PLATTVIL	7258	-1240707975.0	1.5	-4720454347.3	5.2	4094481577.9	4.4
PRESIDIO	7252	-2707704713.5	4.0	-4257609635.8	6.3	3888374112.5	5.9
PT REYES	7251	-2732332940.8	4.9	-4217634930.3	7.3	3914490971.1	6.9
PVERDES	7268	-2525452636.2	8.1	-4670035712.3	14.6	3522886687.0	10.8
QUINCY	7221	-2517230734.0	3.3	-4198595235.6	5.5	4076531222.2	5.3
RICHMOND	7219	961258215.1	.7	-5674090002.9	1.4	2740533643.5	1.1
ROBLED32	1561	4849245393.1	48.6	-360278290.1	11.5	4114884334.7	40.8
SANPAULA	7255	-2554476501.9	7.8	-4608627407.2	14.2	3582138217.2	10.6
SEATTLE1	7229	-2295347843.8	16.3	-3638029496.8	26.8	4693408678.3	31.6
SESHAN25	7227	-2831686598.8	14.7	4675733852.9	19.2	3275327843.3	16.2
SHANGHAI	7226	-2847698105.0	124.0	4659872917.0	107.9	3283958896.2	96.8
SNDPOINT	7280	-3425461751.5	11.2	-1214669147.3	4.7	5223858243.4	16.4
SOURDOGH	7281	-2419993322.3	5.8	-1664228756.5	4.2	5643538233.0	13.1
TROMSONO	7602	2102904289.6	5.6	721602418.6	3.2	5958201180.0	12.4
VERNAL	7290	-1631473141.0	4.8	-4589128907.7	12.0	4106759804.4	10.3
VNDNBERG	7223	-2678094578.2	1.0	-4525450860.8	1.9	3597410053.5	2.1
WESTFORD	7209	1492206824.0	0.0	-4458130478.9	0.0	4296015382.2	0.0
WETTZELL	7224	4075540104.4	1.9	931735131.0	1.1	4801629173.2	3.3
WHTHORSE	7284	-2215213444.7	7.2	-2209261612.2	7.1	5540292480.5	17.3
YAKATAGA	7277	-2529744059.6	5.9	-1942091337.1	4.8	5505027888.5	12.0
YELLOWKN	7285	-1224124359.2	20.5	-2689530655.4	44.0	5633555307.0	91.6
YUMA	7894	-2196777772.0	2.5	-4887337049.7	5.5	3448425169.9	4.1

TABLE 5.10
SITE POSITIONS FOR 1988

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034969.4	8.2	-4346132238.4	32.2	4561971041.4	30.6
AUSTINTX	7271	-737793671.2	3.6	-5459892256.8	16.0	3202990387.5	9.4
BERMUDA	7294	2307209614.5	4.6	-4874215796.9	9.9	3394317754.0	6.6
BLKBUTTE	7269	-2306306818.6	5.0	-4787914426.6	10.2	3515736348.0	7.3
BLOOMIND	7291	302384585.6	10.2	-4941699022.4	34.7	4007908372.7	28.9
BREST	7604	4228877257.8	8.8	-333104306.1	2.9	4747180794.8	10.2
CARNUSTY	7603	3526416535.0	10.4	-171421223.9	3.8	5294098668.1	14.4
CARROLGA	7228	453520758.5	9.3	-5300506746.5	35.3	3507207321.6	21.6
CHLBOLTN	7215	4008310236.6	9.6	-100650868.1	5.5	4943794581.5	12.5
DEADMANL	7267	-2336819530.2	7.3	-4732586979.1	13.7	3570329923.4	10.1
DSS15	7231	-2353538623.4	4.4	-4641649527.5	8.8	3676669943.1	7.5
DSS45	1642	-4460935054.7	19.5	2682765789.1	13.0	-3674381636.8	11.7
DSS65	1665	4849336782.3	12.5	-360488920.5	4.9	4114748536.9	13.2
EFLSBERG	7203	4033947672.6	34.0	486990384.1	15.5	4900430618.7	44.2
ELY	7286	-2077236171.9	3.1	-4486712713.8	6.7	4018753677.0	5.7
FLAGSTAF	7261	-1923992544.4	6.1	-4850854535.9	14.4	3658589240.0	10.5
FORT ORD	7266	-2697026634.9	5.8	-4354393321.2	9.3	3788077541.5	8.0
FORTORDS	7241	-2699840057.0	35.6	-4359127006.7	56.1	3781050825.1	44.8
FTD 7900	7900	-1324227805.3	3.6	-5332063020.9	12.8	3232022955.6	7.6
GILCREEK	7225	-2281547029.5	1.1	-1453645049.1	1.7	5756993168.4	2.3
GOLDVENU	1513	-2351128994.8	2.7	-4655477083.4	5.3	3660956843.2	4.7
GORF7102	7102	1130686717.2	2.9	-4831353005.8	10.2	3994110790.1	8.5
GRASSE	7605	4581697818.7	6.7	556125626.5	2.6	4389351247.0	7.5
HALEAKAL	7120	-5465998392.4	14.1	-2404408566.5	7.4	2242228409.9	7.1
HARTRAO	7232	5085442763.8	11.1	2668263418.5	7.4	-2768697284.7	6.7
HATCREEK	7218	-2523969798.4	1.0	-4123506360.7	1.9	4147752529.5	2.2
HAYSTACK	7205	1492404951.2	1.4	-4457266491.3	3.6	4296881618.8	3.7
HOBART26	7242	-3950236387.5	13.7	2522347596.3	12.8	-4311562936.4	11.4
HOHENFRG	7600	3778215040.6	5.7	698644654.1	2.3	5074053419.3	7.6
HRAS 085	7216	-1324210820.1	.5	-5332023122.8	1.4	3232118296.4	1.6
JPL MV1	7263	-2493305856.9	4.8	-4655197600.9	8.7	3565519266.6	6.6
KASHIMA	1856	-3997892215.5	3.2	3276581258.1	2.1	3724118327.7	4.7
KAUAI	1311	-5543845920.0	2.4	-2054564180.1	2.5	2387813778.5	3.3
KODIAK	7278	-3026940039.9	5.2	-1575911803.2	3.3	5370362453.5	8.9
KWAJAL26	4968	-6143536436.4	10.3	1363997210.3	4.0	1034707410.9	5.6
LEONRDOK	7292	-522231446.3	3.6	-5145676871.3	18.7	3720152261.4	12.4
MAMMOTHL	7259	-2448246618.9	15.2	-4426738288.7	27.2	3875435800.3	23.2
MARPOINT	7217	1106629505.5	1.8	-4882907169.1	6.3	3938086835.9	4.8
MCD 7850	7850	-1330008013.6	2.8	-5328391543.0	10.3	3236502637.2	6.3
MEDICINA	7230	4461370190.1	5.0	919596694.3	2.5	4449558988.7	6.1
METSHOVI	7601	2890652937.5	7.6	1310295220.1	4.3	5513958541.3	12.3
MILESMON	7038	-1204438866.8	9.2	-4239211098.5	29.1	4596265988.8	29.4
MOJ 7288	7288	-2356493971.7	5.8	-4646607684.0	11.0	3668426552.2	8.4
MOJAVE12	7222	-2356170852.3	.5	-4646755890.1	1.5	3668470538.6	1.8
MON PEAK	7274	-2386289275.4	2.6	-4802346577.5	5.1	3444883903.3	3.8

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168149.0	37.8	3428273932.5	33.5	3723697669.1	35.8
NOME	7279	-2658150279.5	20.6	-693821897.7	7.9	5737236550.0	44.3
NOTO	7547	4934563304.0	44.5	1321201137.7	19.1	3806484234.6	40.0
NRAO 140	7204	882880090.6	1.6	-4924482287.2	6.2	3944130552.2	4.9
NRAO85 3	7214	882325770.2	2.5	-4925137941.4	10.0	3943397519.5	7.8
OCOTILLO	7270	-2335600983.0	12.6	-4832244233.9	25.7	3434392453.4	18.1
ONSALA60	7213	3370606213.0	1.9	711917380.4	1.1	5349830547.9	3.3
OVR 7853	7853	-2410421093.6	3.8	-4477800420.7	6.9	3838690257.8	5.6
OVRO 130	7207	-2409600611.6	1.3	-4478349547.5	2.7	3838603145.7	2.6
PBLOSSOM	7254	-2464070786.4	7.6	-4649425633.7	14.3	3593905630.4	10.6
PENTICTN	7283	-2058840357.3	74.6	-3621286420.9	126.7	4814420781.0	159.6
PIETOWN	7234	-1640953507.8	1.2	-5014815976.3	3.3	3575411826.6	2.7
PINFLATS	7256	-2369635813.1	4.3	-4761324918.7	8.6	3511116072.8	6.3
PLATTVIL	7258	-1240707994.5	1.7	-4720454352.3	5.3	4094481572.6	4.6
PRESIDIO	7252	-2707704736.6	3.6	-4257609610.5	5.6	3888374118.2	5.1
PT REYES	7251	-2732332964.8	3.9	-4217634899.9	5.9	3914490985.8	5.5
PVERDES	7268	-2525452662.0	6.4	-4670035675.5	11.8	3522886689.2	8.7
QUINCY	7221	-2517230756.7	2.9	-4198595229.7	5.0	4076531214.8	4.7
RICHMOND	7219	961258202.7	.7	-5674090005.1	1.4	2740533643.6	1.1
ROBLED32	1561	4849245382.9	48.6	-360278271.3	11.5	4114884348.3	40.8
SANPAULA	7255	-2554476538.9	6.7	-4608627389.7	12.0	3582138230.8	9.0
SEATTLE1	7229	-2295347863.4	16.3	-3638029498.9	26.8	4693408667.0	31.6
SESHAN25	7227	-2831686614.5	8.6	4675733824.0	10.3	3275327820.6	10.0
SHANGHAI	7226	-2847698130.0	124.0	4659872909.1	107.9	3283958885.8	96.8
SNDPOINT	7280	-3425461780.1	7.6	-1214669144.6	3.5	5223858239.2	11.1
SOURDOGH	7281	-2419993351.5	9.2	-1664228763.4	6.6	5643538229.4	21.1
TROMSONO	7602	2102904270.6	5.6	721602428.9	3.2	5958201185.5	12.4
VERNAL	7290	-1631473159.1	3.2	-4589128917.5	7.8	4106759803.7	6.7
VNDNBERG	7223	-2678094608.3	.9	-4525450826.9	1.8	3597410069.9	2.0
WESTFORD	7209	1492206805.8	0.0	-4458130481.7	0.0	4296015385.6	0.0
WETTZELL	7224	4075540084.0	2.0	931735144.3	1.2	4801629181.0	3.4
WHTHORSE	7284	-2215213470.6	4.7	-2209261608.8	4.8	5540292464.2	11.2
YAKATAGA	7277	-2529744088.6	8.6	-1942091321.8	6.9	5505027934.4	17.6
YELLOWKN	7285	-1224124388.3	31.4	-2689530681.0	67.6	563355350.4	140.9
YUMA	7894	-2196777790.5	2.9	-4887337056.8	6.4	3448425164.4	4.6

TABLE 5.11
SITE POSITIONS FOR 1989

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034952.2	11.1	-4346132248.5	43.5	4561971048.6	41.4
AUSTINTX	7271	-737793685.3	3.6	-5459892258.5	16.0	3202990381.4	9.4
BERMUDA	7294	2307209599.7	4.6	-4874215799.5	9.9	3394317760.3	6.6
BLKBUTTE	7269	-2306306834.8	7.4	-4787914414.8	15.4	3515736333.2	10.9
BLOOMIND	7291	302384568.4	10.2	-4941699024.8	34.7	4007908371.0	28.9
BREST	7604	4228877245.7	8.8	-333104289.0	2.9	4747180806.7	10.2
CARNUSTY	7603	3526416520.9	10.4	-171421209.0	3.8	5294098678.0	14.4
CARROLGA	7228	453520743.2	9.3	-5300506748.7	35.3	3507207320.4	21.6
CHLBOLTN	7215	4008310223.2	9.6	-100650851.7	5.5	4943794592.7	12.5
DEADMANL	7267	-2336819576.4	14.7	-4732587027.8	27.9	3570329954.4	19.8
DSS15	7231	-2353538639.2	4.4	-4641649529.0	8.8	3676669931.0	7.5
DSS45	1642	-4460935095.8	11.5	2682765795.1	9.3	-3674381584.1	8.3
DSS65	1665	4849336802.4	3.3	-360488906.6	2.1	4114748597.2	4.5
EFLSBERG	7203	4033947659.9	38.9	486990397.5	17.8	4900430631.9	50.6
ELY	7286	-2077236191.6	3.8	-4486712712.2	8.1	4018753664.9	6.7
FLAGSTAF	7261	-1923992568.0	8.9	-4850854554.8	21.2	3658589245.0	15.5
FORT ORD	7266	-2697026666.6	8.2	-4354393292.2	13.2	3788077562.4	11.2
FORTORDS	7241	-2699840150.1	7.1	-4359127055.1	11.3	3781050905.9	9.0
FTD 7900	7900	-1324227819.6	3.6	-5332063022.4	12.8	3232022947.3	7.6
GILCREEK	7225	-2281547055.3	1.4	-1453645053.6	2.2	5756993163.1	3.0
GOLDVENU	1513	-2351129012.6	3.4	-4655477079.2	6.7	3660956837.1	5.7
GORF7102	7102	1130686700.1	2.9	-4831353008.4	10.2	3994110791.9	8.5
GRASSE	7605	4581697804.7	6.7	556125644.6	2.6	4389351259.4	7.5
HALEAKAL	7120	-5465998407.8	14.1	-2404408499.0	7.4	2242228444.9	7.1
HARTRAO	7232	5085442747.6	14.9	2668263440.3	10.0	-2768697270.0	8.4
HATCREEK	7218	-2523969819.8	1.2	-4123506355.7	2.5	4147752522.0	2.5
HAYSTACK	7205	1492404934.2	1.7	-4457266496.0	4.3	4296881623.4	4.4
HOBART26	7242	-3950236425.4	13.7	2522347602.9	12.8	-4311562897.7	11.4
HOHENFRG	7600	3778215024.1	5.7	698644669.8	2.3	5074053429.4	7.6
HRAS 085	7216	-1324210833.7	.6	-5332023119.9	1.8	3232118286.8	1.8
JPL MV1	7263	-2493305891.6	6.4	-4655197581.8	11.7	3565519273.8	8.8
KASHIMA	1856	-3997892214.3	4.3	3276581260.4	2.7	3724118318.4	6.6
KAUAI	1311	-5543845930.5	2.4	-2054564115.4	3.3	2387813810.0	3.6
KODIAK	7278	-3026940065.6	6.7	-1575911797.9	4.4	5370362458.2	11.4
KWAJAL26	4968	-6143536408.7	14.1	1363997279.6	5.6	1034707437.1	7.4
LEONRDOK	7292	-522231462.5	3.6	-5145676873.4	18.7	3720152256.3	12.4
MAMMOTHL	7259	-2448246635.0	20.4	-4426738264.4	36.4	3875435783.4	30.9
MARPOINT	7217	1106629486.9	2.1	-4882907170.0	7.3	3938086834.7	5.5
MCD 7850	7850	-1330008027.8	2.8	-5328391544.5	10.3	3236502628.8	6.3
MEDICINA	7230	4461370171.0	3.7	919596703.5	1.9	4449559002.4	4.9
METSHOVI	7601	2890652917.7	7.6	1310295232.9	4.3	5513958548.7	12.3
MILESMON	7038	-1204438886.2	9.2	-4239211100.8	29.1	4596265981.5	29.4
MOJ 7288	7288	-2356493987.5	5.8	-4646607685.5	11.0	3668426540.1	8.4
MOJAVE12	7222	-2356170868.9	.6	-4646755884.1	2.0	3668470532.5	2.1
MON PEAK	7274	-2386289311.0	3.4	-4802346549.4	6.9	3444883911.3	4.9

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168163.0	37.8	3428273931.3	33.5	3723697655.6	35.8
NOME	7279	-2658150296.3	28.7	-693821898.7	11.0	5737236531.0	62.1
NOTO	7547	4934563292.9	16.1	1321201157.7	7.0	3806484253.6	15.0
NRAO 140	7204	882880073.1	1.8	-4924482288.7	7.1	3944130553.4	5.6
NRAO85 3	7214	882325753.3	2.5	-4925137943.9	10.0	3943397520.2	7.8
OCOTILLO	7270	-2335600997.9	12.6	-4832244235.3	25.7	3434392441.2	18.1
ONSALA60	7213	3370606196.0	2.6	711917391.8	1.5	5349830557.6	4.0
OVR 7853	7853	-2410421110.0	3.8	-4477800422.3	6.9	3838690245.6	5.6
OVRO 130	7207	-2409600630.8	1.6	-4478349540.7	3.4	3838603138.9	3.1
PBLOSSOM	7254	-2464070807.8	10.3	-4649425609.6	19.4	3593905626.7	14.3
PENTICTN	7283	-2058840416.6	103.1	-3621286446.5	175.0	4814420828.6	220.8
PIETOWN	7234	-1640953523.3	1.2	-5014815978.0	3.3	3575411817.2	2.7
PINFLATS	7256	-2369635838.9	6.5	-4761324900.2	13.2	3511116074.5	9.5
PLATTVIL	7258	-1240708014.0	2.3	-4720454357.3	7.1	4094481567.3	6.1
PRESIDIO	7252	-2707704759.7	4.8	-4257609585.1	7.5	3888374123.9	6.6
PT REYES	7251	-2732332988.9	5.3	-4217634869.5	8.1	3914491000.6	7.3
PVERDES	7268	-2525452688.0	8.3	-4670035638.6	15.1	3522886691.5	11.0
QUINCY	7221	-2517230779.5	3.6	-4198595223.8	6.1	4076531207.3	5.6
RICHMOND	7219	961258190.2	.7	-5674090007.3	1.4	2740533643.8	1.1
ROBLED32	1561	4849245372.7	48.6	-360278252.5	11.5	4114884362.0	40.8
SANPAULA	7255	-2554476576.0	8.1	-4608627372.0	14.4	3582138244.3	10.7
SEATTLE1	7229	-2295347883.1	16.3	-3638029501.0	26.8	4693408655.8	31.6
SESHAN25	7227	-2831686630.2	6.1	4675733795.0	4.9	3275327798.0	8.5
SHANGHAI	7226	-2847698155.1	124.0	4659872901.1	107.9	3283958875.4	96.8
SNDPOINT	7280	-3425461808.9	7.3	-1214669141.9	3.9	5223858235.0	10.8
SOURDOGH	7281	-2419993380.9	13.4	-1664228770.3	9.5	5643538225.7	30.5
TROMSONO	7602	2102904251.6	5.6	721602439.3	3.2	5958201190.9	12.4
VERNAL	7290	-1631473177.3	4.0	-4589128927.3	9.5	4106759803.0	8.0
VNDNBERG	7223	-2678094638.5	1.1	-4525450792.9	2.5	3597410086.3	2.4
WESTFORD	7209	1492206787.5	0.0	-4458130484.5	0.0	4296015389.0	0.0
WETTZELL	7224	4075540063.6	2.7	931735157.6	1.5	4801629188.8	4.1
WHTHORSE	7284	-2215213496.6	4.6	-2209261605.4	4.8	5540292447.8	10.5
YAKATAGA	7277	-2529744117.8	13.4	-1942091306.5	10.6	5505027980.5	27.6
YELLOWKN	7285	-1224124417.5	42.6	-2689530706.7	91.5	5633555393.8	191.1
YUMA	7894	-2196777809.1	4.5	-4887337063.8	9.9	3448425159.0	7.0

TABLE 5.12
SITE POSITIONS FOR 1990

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034935.0	14.0	-4346132258.6	54.9	4561971055.8	52.3
AUSTINTX	7271	-737793699.5	3.6	-5459892260.1	16.0	3202990375.4	9.4
BERMUDA	7294	2307209585.0	4.6	-4874215802.0	9.9	3394317766.7	6.6
BLKBUTTE	7269	-2306306851.0	10.5	-4787914403.1	21.7	3515736318.5	15.3
BLOOMIND	7291	302384551.2	10.2	-4941699027.2	34.7	4007908369.4	28.9
BREST	7604	4228877233.7	8.8	-333104272.0	2.9	4747180818.6	10.2
CARNUSTY	7603	3526416506.9	10.4	-171421194.1	3.8	5294098687.8	14.4
CARROLGA	7228	453520727.9	9.3	-5300506750.8	35.3	3507207319.1	21.6
CHLBOLTN	7215	4008310209.9	9.6	-100650835.3	5.5	4943794603.8	12.5
DEADMANL	7267	-2336819622.5	23.9	-4732587076.3	45.8	3570329985.4	32.2
DSS15	7231	-2353538655.0	4.4	-4641649530.5	8.8	3676669919.0	7.5
DSS45	1642	-4460935136.7	13.9	2682765801.0	12.1	-3674381531.5	10.7
DSS65	1665	4849336822.5	11.2	-360488892.8	4.6	4114748657.4	12.1
EFLSBERG	7203	4033947647.1	43.8	486990410.9	20.1	4900430645.0	57.1
ELY	7286	-2077236211.2	5.5	-4486712710.6	11.7	4018753652.9	9.7
FLAGSTAF	7261	-1923992591.6	12.2	-4850854573.7	29.2	3658589250.0	21.2
FORT ORD	7266	-2697026698.3	11.1	-4354393263.3	17.9	3788077583.1	15.3
FORTORDS	7241	-2699840243.0	29.4	-4359127103.3	46.8	3781050986.5	37.8
FTD 7900	7900	-1324227833.8	3.6	-5332063023.9	12.8	3232022938.9	7.6
GILCREEK	7225	-2281547080.9	1.9	-1453645058.0	2.9	5756993157.7	4.1
GOLDVENU	1513	-2351129030.4	4.1	-4655477074.9	8.1	3660956830.9	6.9
GORF7102	7102	1130686682.9	2.9	-4831353011.0	10.2	3994110793.6	8.5
GRASSE	7605	4581697790.6	6.7	556125662.6	2.6	4389351271.8	7.5
HALEAKAL	7120	-5465998423.1	14.1	-2404408431.8	7.4	2242228479.8	7.1
HARTRAO	7232	5085442731.4	21.5	2668263462.0	14.1	-2768697255.5	11.2
HATCREEK	7218	-2523969841.1	1.6	-4123506350.7	3.5	4147752514.6	3.2
HAYSTACK	7205	1492404917.4	2.0	-4457266500.8	5.0	4296881627.9	5.1
HOBART26	7242	-3950236463.2	13.7	2522347609.6	12.8	-4311562859.2	11.4
HOHENFRG	7600	3778215007.7	5.7	698644685.4	2.3	5074053439.5	7.6
HRAS 085	7216	-1324210847.3	.7	-5332023117.0	2.5	3232118277.3	2.2
JPL MV1	7263	-2493305926.2	8.3	-4655197562.8	15.2	3565519280.9	11.5
KASHIMA	1856	-3997892213.1	5.8	3276581262.5	3.7	3724118309.0	9.1
KAUAI	1311	-5543845940.8	2.5	-2054564050.9	4.3	2387813841.4	4.2
KODIAK	7278	-3026940091.2	10.6	-1575911792.5	6.6	5370362463.0	17.8
KWAJAL26	4968	-6143536381.1	18.4	1363997348.7	7.5	1034707463.3	9.8
LEONRDOK	7292	-522231478.5	3.6	-5145676875.4	18.7	3720152251.3	12.4
MAMMOTHL	7259	-2448246651.1	25.9	-4426738240.1	46.1	3875435766.6	39.1
MARPOINT	7217	1106629468.3	2.4	-4882907170.8	8.6	3938086833.5	6.6
MCD 7850	7850	-1330008042.0	2.8	-5328391546.1	10.3	3236502620.5	6.3
MEDICINA	7230	4461370152.0	7.9	919596712.6	3.7	4449559016.1	9.1
METSHOVI	7601	2890652898.0	7.6	1310295245.8	4.3	5513958556.0	12.3
MILESMON	7038	-1204438905.5	9.2	-4239211103.2	29.1	4596265974.3	29.4
MOJ 7288	7288	-2356494003.2	5.8	-4646607687.0	11.0	3668426528.1	8.4
MOJAVE12	7222	-2356170885.5	.7	-4646755878.2	2.8	3668470526.3	2.5
MON PEAK	7274	-2386289346.6	4.5	-4802346521.3	9.2	3444883919.2	6.5

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168177.0	37.8	3428273930.1	33.5	3723697642.1	35.8
NOME	7279	-2658150313.0	36.9	-693821899.7	14.3	5737236512.2	80.1
NOTO	7547	4934563281.9	14.2	1321201177.8	6.3	3806484272.6	13.0
NRAO 140	7204	882880055.7	2.1	-4924482290.2	8.1	3944130554.6	6.5
NRAO85 3	7214	882325736.3	2.5	-4925137946.4	10.0	3943397520.9	7.8
OCOTILLO	7270	-2335601012.7	12.6	-4832244236.7	25.7	3434392429.2	18.1
ONSALA60	7213	3370606179.1	3.5	711917403.2	2.0	5349830567.3	5.1
OVR 7853	7853	-2410421126.4	3.8	-4477800423.9	6.9	3838690233.4	5.6
OVRO 130	7207	-2409600650.0	1.8	-4478349533.9	4.3	3838603132.2	3.7
PBLOSSOM	7254	-2464070829.1	13.2	-4649425585.6	25.0	3593905623.1	18.5
PENTICTN	7283	-2058840475.8	131.7	-3621286472.0	223.4	4814420876.1	282.0
PIETOWN	7234	-1640953538.8	1.2	-5014815979.7	3.3	3575411807.7	2.7
PINFLATS	7256	-2369635864.6	9.1	-4761324881.9	18.5	3511116076.1	13.3
PLATTVIL	7258	-1240708033.4	3.2	-4720454362.3	9.7	4094481562.0	8.2
PRESIDIO	7252	-2707704782.8	6.8	-4257609559.9	10.7	3888374129.5	9.4
PT REYES	7251	-2732333012.9	7.9	-4217634839.2	12.0	3914491015.3	10.8
PVERDES	7268	-2525452713.8	12.0	-4670035601.8	21.9	3522886693.7	15.9
QUINCY	7221	-2517230802.2	4.9	-4198595218.0	8.3	4076531199.9	7.5
RICHMOND	7219	961258177.7	.7	-5674090009.4	1.4	2740533643.9	1.2
ROBLED32	1561	4849245362.6	48.6	-360278233.7	11.5	4114884375.6	40.8
SANPAULA	7255	-2554476613.0	11.0	-4608627354.5	19.8	3582138257.8	14.6
SEATTLE1	7229	-2295347902.6	16.3	-3638029503.2	26.8	4693408644.5	31.6
SESHAN25	7227	-2831686645.9	10.2	4675733766.1	11.1	3275327775.3	13.3
SHANGHAI	7226	-2847698180.1	124.0	4659872893.1	107.9	3283958865.0	96.8
SNDPOINT	7280	-3425461837.6	10.6	-1214669139.2	5.5	5223858230.9	15.7
SOURDOGH	7281	-2419993410.2	17.6	-1664228777.1	12.6	5643538222.1	40.4
TROMSONO	7602	2102904232.6	5.6	721602449.7	3.2	5958201196.3	12.4
VERNAL	7290	-1631473195.5	6.3	-4589128937.2	15.1	4106759802.3	12.8
VNDNBERG	7223	-2678094668.5	1.5	-4525450759.0	3.4	3597410102.7	3.0
WESTFORD	7209	1492206769.3	0.0	-4458130487.4	0.0	4296015392.4	0.0
WETTZELL	7224	4075540043.3	3.7	931735170.8	2.1	4801629196.6	5.2
WHTHORSE	7284	-2215213522.5	7.0	-2209261602.0	7.1	5540292431.4	15.9
YAKATAGA	7277	-2529744146.9	18.6	-1942091291.2	14.7	5505028026.5	38.6
YELLOWKN	7285	-1224124446.6	53.8	-2689530732.4	115.6	5633555437.1	241.4
YUMA	7894	-2196777827.6	6.5	-4887337070.9	14.3	3448425153.5	10.0

TABLE 5.13
SITE POSITIONS FOR 1991

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034917.8	16.9	-4346132268.7	66.3	4561971063.0	63.2
AUSTINTX	7271	-737793713.6	3.6	-5459892261.8	16.0	3202990369.3	9.4
BERMUDA	7294	2307209570.3	4.6	-4874215804.5	9.9	3394317773.1	6.6
BLKBUTTE	7269	-2306306867.2	13.7	-4787914391.4	28.4	3515736303.7	20.0
BLOOMIND	7291	302384534.0	10.2	-4941699029.6	34.7	4007908367.8	28.9
BREST	7604	4228877221.7	8.8	-333104255.0	2.9	4747180830.5	10.2
CARNUSTY	7603	3526416492.8	10.4	-171421179.2	3.8	5294098697.7	14.4
CARROLGA	7228	453520712.6	9.3	-5300506752.9	35.3	3507207317.9	21.6
CHLBOLTN	7215	4008310196.6	9.6	-100650819.0	5.5	4943794615.0	12.5
DEADMANL	7267	-2336819668.6	33.5	-4732587124.8	64.5	3570330016.3	45.1
DSS15	7231	-2353538670.8	4.4	-4641649532.1	8.8	3676669907.0	7.5
DSS45	1642	-4460935177.7	23.7	2682765807.0	18.7	-3674381478.9	16.6
DSS65	1665	4849336842.5	22.3	-360488878.9	8.7	4114748717.5	23.5
EFLSBERG	7203	4033947634.4	48.7	486990424.3	22.5	4900430658.2	63.6
ELY	7286	-2077236230.8	7.5	-4486712709.0	16.1	4018753640.8	13.3
FLAGSTAF	7261	-1923992615.1	15.6	-4850854592.5	37.6	3658589255.0	27.3
FORT ORD	7266	-2697026729.9	14.3	-4354393234.4	23.0	3788077603.8	19.6
FORTORDS	7241	-2699840335.8	60.8	-4359127151.5	96.6	3781051067.1	77.7
FTD 7900	7900	-1324227847.9	3.6	-5332063025.5	12.8	3232022930.6	7.6
GILCREEK	7225	-2281547106.6	2.5	-1453645062.5	3.8	5756993152.4	5.3
GOLDVENU	1513	-2351129048.2	4.8	-4655477070.7	9.7	3660956824.8	8.2
GORF7102	7102	1130686665.9	2.9	-4831353013.6	10.2	3994110795.3	8.5
GRASSE	7605	4581697776.5	6.7	556125680.6	2.6	4389351284.1	7.5
HALEAKAL	7120	-5465998438.3	14.1	-2404408364.5	7.4	2242228514.6	7.1
HARTRAO	7232	5085442715.2	29.0	2668263483.8	18.8	-2768697240.9	14.6
HATCREEK	7218	-2523969862.4	2.0	-4123506345.7	4.5	4147752507.1	4.0
HAYSTACK	7205	1492404900.5	2.2	-4457266505.5	5.7	4296881632.5	5.8
HOBART26	7242	-3950236501.0	13.7	2522347616.3	12.8	-4311562820.7	11.4
HOHENFRG	7600	3778214991.3	5.7	698644701.1	2.3	5074053449.5	7.6
HRAS 085	7216	-1324210860.8	.8	-5332023114.1	3.2	3232118267.7	2.6
JPL MV1	7263	-2493305960.8	10.4	-4655197543.8	19.0	3565519288.1	14.3
KASHIMA	1856	-3997892212.0	7.5	3276581264.7	4.7	3724118299.7	11.8
KAUAI	1311	-5543845951.2	2.6	-2054563986.4	5.4	2387813872.8	5.0
KODIAK	7278	-3026940116.8	15.0	-1575911787.2	9.2	5370362467.7	25.4
KWAJAL26	4968	-6143536353.6	23.0	1363997417.8	9.5	1034707489.4	12.4
LEONRDOK	7292	-522231494.6	3.6	-5145676877.4	18.7	3720152246.2	12.4
MAMMOTHL	7259	-2448246667.1	31.5	-4426738215.8	56.1	3875435749.7	47.4
MARPOINT	7217	1106629449.7	2.9	-4882907171.6	10.2	3938086832.3	7.9
MCD 7850	7850	-1330008056.2	2.8	-5328391547.6	10.3	3236502612.1	6.3
MEDICINA	7230	4461370132.9	13.2	919596721.7	6.0	4449559029.8	14.6
METSHOVI	7601	2890652878.3	7.6	1310295258.6	4.3	5513958563.2	12.3
MILESMON	7038	-1204438924.9	9.2	-4239211105.5	29.1	4596265967.1	29.4
MOJ 7288	7288	-2356494019.0	5.8	-4646607688.6	11.0	3668426516.0	8.4
MOJAVE12	7222	-2356170902.1	.9	-4646755872.3	3.6	3668470520.2	3.1
MON PEAK	7274	-2386289382.2	5.7	-4802346493.2	11.7	3444883927.2	8.2

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168191.0	37.8	3428273929.0	33.5	3723697628.7	35.8
NOME	7279	-2658150329.8	45.2	-693821900.7	17.6	5737236493.3	98.4
NOTO	7547	4934563270.8	42.5	1321201197.8	18.3	3806484291.6	37.8
NRAO 140	7204	882880038.3	2.4	-4924482291.6	9.2	3944130555.9	7.3
NRAO85 3	7214	882325719.4	2.5	-4925137948.8	10.0	3943397521.5	7.8
OCOTILLO	7270	-2335601027.6	12.6	-4832244238.0	25.7	3434392417.1	18.1
ONSALA60	7213	3370606162.3	4.5	711917414.6	2.5	5349830577.0	6.4
OVR 7853	7853	-2410421142.8	3.8	-4477800425.5	6.9	3838690221.2	5.6
OVRO 130	7207	-2409600669.2	2.2	-4478349527.1	5.2	3838603125.5	4.5
PBLOSSOM	7254	-2464070850.5	16.3	-4649425561.6	30.9	3593905619.4	22.8
PENTICTN	7283	-2058840535.1	160.3	-3621286497.6	271.9	4814420923.7	343.3
PIETOWN	7234	-1640953554.2	1.2	-5014815981.3	3.3	3575411798.3	2.7
PINFLATS	7256	-2369635890.3	11.8	-4761324863.5	24.0	3511116077.7	17.2
PLATTVIL	7258	-1240708052.9	4.1	-4720454367.3	12.6	4094481556.7	10.6
PRESIDIO	7252	-2707704805.9	9.1	-4257609534.6	14.4	3888374135.2	12.7
PT REYES	7251	-2732333036.9	10.9	-4217634808.9	16.4	3914491030.0	14.8
PVERDES	7268	-2525452739.7	16.5	-4670035565.0	29.8	3522886696.0	21.7
QUINCY	7221	-2517230825.0	6.4	-4198595212.1	10.9	4076531192.5	9.9
RICHMOND	7219	961258165.2	.7	-5674090011.5	1.4	2740533644.0	1.2
ROBLED32	1561	4849245352.4	48.6	-360278214.9	11.5	4114884389.2	40.8
SANPAULA	7255	-2554476650.0	14.7	-4608627337.0	26.3	3582138271.3	19.5
SEATTLE1	7229	-2295347922.3	16.3	-3638029505.3	26.8	4693408633.3	31.6
SESHAN25	7227	-2831686661.6	16.6	4675733737.2	20.1	3275327752.7	20.4
SHANGHAI	7226	-2847698205.1	124.0	4659872885.1	107.9	3283958854.6	96.8
SNDPOINT	7280	-3425461866.3	15.4	-1214669136.5	7.6	5223858226.7	22.7
SOURDOGH	7281	-2419993439.4	22.0	-1664228784.0	15.8	5643538218.4	50.4
TROMSONO	7602	2102904213.7	5.6	721602460.1	3.2	5958201201.8	12.4
VERNAL	7290	-1631473213.7	9.0	-4589128947.0	21.9	4106759801.6	18.5
VNDNBERG	7223	-2678094698.6	2.0	-4525450725.1	4.5	3597410119.1	3.8
WESTFORD	7209	1492206751.1	0.0	-4458130490.2	0.0	4296015395.7	0.0
WETTZELL	7224	4075540022.9	4.8	931735184.1	2.7	4801629204.4	6.5
WHTHORSE	7284	-2215213548.4	10.2	-2209261598.7	10.3	5540292415.0	23.6
YAKATAGA	7277	-2529744176.0	24.1	-1942091275.9	19.0	5505028072.5	50.0
YELLOWKN	7285	-1224124475.7	65.0	-2689530758.0	139.7	5633555480.4	291.8
YUMA	7894	-2196777846.1	8.6	-4887337078.0	18.9	3448425148.0	13.2

TABLE 5.14
SITE POSITIONS FOR 1992

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
ALGOPARK	7282	918034900.6	19.8	-4346132278.7	77.6	4561971070.2	74.1
AUSTINTX	7271	-737793727.7	3.6	-5459892263.5	16.0	3202990363.2	9.4
BERMUDA	7294	2307209555.5	4.6	-4874215807.1	9.9	3394317779.5	6.6
BLKBUTTE	7269	-2306306883.4	17.0	-4787914379.7	35.3	3515736289.0	24.9
BLOOMIND	7291	302384516.8	10.2	-4941699031.9	34.7	4007908366.1	28.9
BREST	7604	4228877209.7	8.8	-333104238.0	2.9	4747180842.4	10.2
CARNUSTY	7603	3526416478.7	10.4	-171421164.3	3.8	5294098707.5	14.4
CARROLGA	7228	453520697.3	9.3	-5300506755.1	35.3	3507207316.6	21.6
CHLBOLTN	7215	4008310183.2	9.6	-100650802.6	5.5	4943794626.1	12.5
DEADMANL	7267	-2336819714.7	43.3	-4732587173.3	83.3	3570330047.2	58.1
DSS15	7231	-2353538686.6	4.4	-4641649533.6	8.8	3676669894.9	7.5
DSS45	1642	-4460935218.7	35.1	2682765813.0	26.4	-3674381426.3	23.5
DSS65	1665	4849336862.6	33.6	-360488865.1	12.9	4114748777.7	35.2
EFLSBERG	7203	4033947621.7	53.6	486990437.7	24.8	4900430671.3	70.1
ELY	7286	-2077236250.4	9.8	-4486712707.4	20.8	4018753628.7	17.2
FLAGSTAF	7261	-1923992638.6	19.1	-4850854611.4	46.1	3658589260.0	33.6
FORT ORD	7266	-2697026761.6	17.5	-4354393205.5	28.3	3788077624.6	24.0
FORTORDS	7241	-2699840428.7	92.4	-4359127199.7	146.7	3781051147.7	117.9
FTD 7900	7900	-1324227862.1	3.6	-5332063027.0	12.8	3232022922.3	7.6
GILCREEK	7225	-2281547132.2	3.2	-1453645066.9	4.7	5756993147.1	6.6
GOLDVENU	1513	-2351129066.0	5.6	-4655477066.4	11.4	3660956818.7	9.5
GORF7102	7102	1130686648.7	2.9	-4831353016.2	10.2	3994110797.0	8.5
GRASSE	7605	4581697762.5	6.7	556125698.6	2.6	4389351296.5	7.5
HALEAKAL	7120	-5465998453.7	14.1	-2404408297.2	7.4	2242228549.5	7.1
HARTRAO	7232	5085442699.0	36.8	2668263505.5	23.7	-2768697226.3	18.1
HATCREEK	7218	-2523969883.7	2.5	-4123506340.7	5.6	4147752499.7	5.0
HAYSTACK	7205	1492404883.7	2.5	-4457266510.3	6.4	4296881637.1	6.5
HOBART26	7242	-3950236538.7	13.7	2522347622.9	12.8	-4311562782.2	11.4
HOHENFRG	7600	3778214974.9	5.7	698644716.7	2.3	5074053459.6	7.6
HRAS 085	7216	-1324210874.4	.9	-5332023111.3	4.0	3232118258.2	3.1
JPL MV1	7263	-2493305995.4	12.5	-4655197524.8	22.9	3565519295.3	17.2
KASHIMA	1856	-3997892210.8	9.2	3276581267.0	5.7	3724118290.4	14.5
KAUAI	1311	-5543845961.6	2.8	-2054563921.9	6.5	2387813904.2	5.8
KODIAK	7278	-3026940142.4	19.7	-1575911781.9	12.0	5370362472.5	33.3
KWAJAL26	4968	-6143536326.0	27.6	1363997486.9	11.5	1034707515.6	15.2
LEONRDOK	7292	-522231510.7	3.6	-5145676879.4	18.7	3720152241.2	12.4
MAMMOTHL	7259	-2448246683.2	37.3	-4426738191.6	66.2	3875435732.9	55.9
MARPOINT	7217	1106629431.2	3.4	-4882907172.4	11.9	3938086831.1	9.3
MCD 7850	7850	-1330008070.4	2.8	-5328391549.1	10.3	3236502603.7	6.3
MEDICINA	7230	4461370113.8	18.6	919596730.9	8.4	4449559043.5	20.4
METSHOVI	7601	2890652858.5	7.6	1310295271.4	4.3	5513958570.5	12.3
MILESMON	7038	-1204438944.2	9.2	-4239211107.9	29.1	4596265959.8	29.4
MOJ 7288	7288	-2356494034.8	5.8	-4646607690.1	11.0	3668426504.0	8.4
MOJAVE12	7222	-2356170918.8	1.2	-4646755866.4	4.5	3668470514.1	3.7
MON PEAK	7274	-2386289417.8	7.0	-4802346465.1	14.3	3444883935.2	10.1

SITE	MON	X mm	ERROR mm	Y mm	ERROR mm	Z mm	ERROR mm
NOBEY 6M	7244	-3871168204.9	37.8	3428273927.8	33.5	3723697615.3	35.8
NOME	7279	-2658150346.5	53.5	-693821901.6	20.9	5737236474.4	116.7
NOTO	7547	4934563259.8	71.2	1321201217.8	30.5	3806484310.6	63.3
NRAO 140	7204	882880020.8	2.7	-4924482293.1	10.3	3944130557.1	8.2
NRAO85 3	7214	882325702.5	2.5	-4925137951.3	10.0	3943397522.2	7.8
OCOTILLO	7270	-2335601042.5	12.6	-4832244239.5	25.7	3434392405.0	18.1
ONSALA60	7213	3370606145.4	5.6	711917426.0	3.1	5349830586.7	7.8
OVR 7853	7853	-2410421159.2	3.8	-4477800427.1	6.9	3838690209.0	5.6
OVRO 130	7207	-2409600688.4	2.5	-4478349520.3	6.3	3838603118.7	5.3
PBLOSSOM	7254	-2464070871.8	19.5	-4649425537.6	36.9	3593905615.8	27.3
PENTICTN	7283	-2058840594.3	189.0	-3621286523.1	320.5	4814420971.2	404.8
PIETOWN	7234	-1640953569.7	1.2	-5014815982.9	3.3	3575411788.9	2.7
PINFLATS	7256	-2369635915.9	14.5	-4761324845.1	29.6	3511116079.4	21.1
PLATTVIL	7258	-1240708072.3	5.0	-4720454372.3	15.6	4094481551.5	13.1
PRESIDIO	7252	-2707704828.9	11.6	-4257609509.3	18.3	3888374140.8	16.1
PT REYES	7251	-2732333061.0	14.0	-4217634778.6	21.1	3914491044.7	19.1
PVERDES	7268	-2525452765.5	21.1	-4670035528.2	38.2	3522886698.2	27.8
QUINCY	7221	-2517230847.7	8.1	-4198595206.2	13.7	4076531185.1	12.5
RICHMOND	7219	961258152.7	.7	-5674090013.7	1.4	2740533644.2	1.3
ROBLED32	1561	4849245342.3	48.6	-360278196.1	11.5	4114884402.8	40.8
SANPAULA	7255	-2554476687.0	18.6	-4608627319.4	33.4	3582138284.9	24.7
SEATTLE1	7229	-2295347941.8	16.3	-3638029507.4	26.8	4693408622.1	31.6
SESHAN25	7227	-2831686677.2	23.5	4675733708.3	29.5	3275327730.1	28.0
SHANGHAI	7226	-2847698230.1	124.0	4659872877.1	107.9	3283958844.3	96.8
SNDPOINT	7280	-3425461895.0	20.6	-1214669133.8	9.9	5223858222.6	30.3
SOURDOGH	7281	-2419993468.7	26.4	-1664228790.9	18.9	5643538214.8	60.5
TROMSONO	7602	2102904194.7	5.6	721602470.5	3.2	5958201207.2	12.4
VERNAL	7290	-1631473231.8	11.8	-4589128956.8	28.9	4106759800.9	24.6
VNDNBERG	7223	-2678094728.7	2.5	-4525450691.2	5.6	3597410135.5	4.6
WESTFORD	7209	1492206732.9	0.0	-4458130493.1	0.0	4296015399.1	0.0
WETTZELL	7224	4075540002.5	5.9	931735197.3	3.4	4801629212.2	7.8
WHTHORSE	7284	-2215213574.3	13.7	-2209261595.3	13.7	5540292398.7	31.9
YAKATAGA	7277	-2529744205.0	29.6	-1942091260.6	23.4	5505028118.4	61.6
YELLOWKN	7285	-1224124504.8	76.2	-2689530783.7	163.8	5633555523.8	342.3
YUMA	7894	-2196777864.6	10.7	-4887337085.1	23.6	3448425142.6	16.5

6.0 BASELINE STATISTICS SUMMARIES

Table 6.1 presents information about the mean length of the baselines. The number of observations on each baseline is indicated in the second column. The span in decimal years extends from the earliest to the most recent session included in this report. The mean value is the weighted mean, in mm, of all of the observations. The formal error of the mean is its one-sigma standard statistical error. The weighted rms and the reduced χ^2 of the fit to the mean are given in the last two columns.

Table 6.2 presents information about the rates of change (slope) in mm/yr, of the baseline length for those baselines in Table 6.1 for which there were at least five observations spanning at least 2 years. The rate of change was computed from a weighted linear fit to the individual session values and the formal errors are one-sigma standard statistical errors. The weighted rms and reduced χ^2 of the fit to the line are given in columns four and five. The "epoch value" is the estimated baseline length for January 1, 1988 from the linear fit. The "epoch error" is its one-sigma standard statistical error. The correlation given is the correlation of the error of the slope to the error of the epoch value.

Tables 6.3 and 6.4 contain the statistics of the transverse and vertical baseline components. See the text for the definitions and interpretation of the transverse and vertical components. Neither table explicitly states the adjustments to the transverse and vertical as these values are arbitrary. The other columns are calculated and weighted as in Tables 6.1 and 6.2 except that no slopes were determined for the vertical components.

TABLE 6.1
LENGTH STATISTICAL SUMMARY
MEAN

BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
ALGOPARK-GILCREEK	4	84.6-85.7	4475699367.1	6.2	10.8	3.50
ALGOPARK-HRAS 085	5	84.6-85.7	2787141067.8	5.3	10.6	2.17
ALGOPARK-MOJAVE12	1	85.6-85.6	3407219029.9	5.4	.0	.00
ALGOPARK-PENTICTN	3	84.6-85.7	3074234601.9	18.7	26.4	3.87
ALGOPARK-WESTFORD	2	84.7-85.6	642611328.3	.1	.1	.01
ALGOPARK-YELLOWKN	2	84.6-85.7	2912296026.0	13.0	13.0	2.79
AUSTINTX-HRAS 085	1	87.5-87.5	600902671.0	2.9	.0	.00
AUSTINTX-RICHMOND	1	87.5-87.5	1773844465.2	5.9	.0	.00
AUSTINTX-WESTFORD	1	87.5-87.5	2677897005.3	6.6	.0	.00
BERMUDA -MARPOINT	3	87.6-87.6	1318010983.3	12.3	17.3	10.32
BERMUDA -RICHMOND	4	87.6-87.6	1696707887.0	6.5	11.2	2.72
BERMUDA -WESTFORD	4	87.6-87.6	1284684863.4	1.7	3.0	.27
BLKBUTTE-ELY	2	88.8-88.8	629461894.3	.4	.4	.01
BLKBUTTE-HATCREEK	5	87.1-88.8	942475305.7	7.0	14.1	4.02
BLKBUTTE-HRAS 085	5	83.9-88.8	1158018145.5	4.4	8.8	3.42
BLKBUTTE-MOJAVE12	12	83.9-88.8	213868853.2	2.3	7.7	2.29
BLKBUTTE-MON PEAK	4	83.9-86.8	107821846.8	2.6	4.4	.83
BLKBUTTE-OCOTILLO	2	84.2-85.0	97160209.5	9.8	9.8	1.08
BLKBUTTE-OVRO 130	3	86.4-87.8	459067517.3	6.7	9.5	5.44
BLKBUTTE-PRESIDIO	2	87.4-87.8	762366281.0	8.3	8.3	1.76
BLKBUTTE-PT REYES	1	87.1-87.1	815918039.6	9.6	.0	.00
BLKBUTTE-VNDNBERG	12	83.9-88.8	462367692.6	9.2	30.7	41.19
BLOOMIND-HRAS 085	1	87.6-87.6	1843913182.7	11.9	.0	.00
BLOOMIND-WESTFORD	1	87.6-87.6	1316252670.7	12.1	.0	.00
BREST -MOJAVE12	2	89.7-89.7	7945694716.2	15.4	15.4	1.08
BREST -NOTO	4	89.7-89.7	2029686996.6	11.3	19.6	11.71
BREST -ONSALA60	1	89.7-89.7	1480502014.1	5.8	.0	.00
BREST -RICHMOND	1	89.7-89.7	6574959705.0	17.6	.0	.00
BREST -WESTFORD	2	89.7-89.7	4970790333.7	12.5	12.5	2.10
BREST -WETTZELL	4	89.7-89.7	1275263006.3	5.9	10.3	6.09
CARNUSTY-MOJAVE12	1	89.6-89.6	7568098954.7	19.0	.0	.00
CARNUSTY-RICHMOND	1	89.6-89.6	6586356788.0	17.7	.0	.00
CARNUSTY-WESTFORD	1	89.6-89.6	4848716948.1	12.5	.0	.00
CARNUSTY-WETTZELL	4	89.6-89.6	1327033088.5	5.5	9.5	2.18
CARROLGA-HRAS 085	1	87.5-87.5	1799165582.9	12.7	.0	.00
CARROLGA-RICHMOND	1	87.5-87.5	992547370.9	7.9	.0	.00
CARROLGA-WESTFORD	1	87.5-87.5	1552637957.8	10.9	.0	.00
CHLBOLTN-HAYSTACK	7	80.8-80.8	5072314451.3	7.3	17.9	2.80
CHLBOLTN-HRAS 085	7	80.8-80.8	7663737361.2	14.9	36.6	1.33
CHLBOLTN-ONSALA60	7	80.8-80.8	1109864323.0	1.9	4.7	.49
CHLBOLTN-OVRO 130	6	80.8-80.8	7846991262.5	11.1	24.9	1.17
DEADMANL-JPL MV1	1	88.1-88.1	174643147.2	6.3	.0	.00
DEADMANL-MOJAVE12	5	84.2-88.1	131806789.6	6.2	12.4	3.60

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
DEADMANL-SANPAULA	4	84.2-87.9	250758810.7	18.6	32.3	20.99
DEADMANL-VNDNBERG	5	84.2-88.1	400134210.0	17.7	35.4	16.52
DSS15 -GILCREEK	1	89.6-89.6	3807400685.3	5.9	.0	.00
DSS15 -GOLDVENU	1	87.8-87.8	21069152.4	3.0	.0	.00
DSS15 -HAYSTACK	1	89.6-89.6	3899992483.9	5.7	.0	.00
DSS15 -MOJ 7288	1	87.8-87.8	10063344.1	3.5	.0	.00
DSS15 -MOJAVE12	1	87.8-87.8	10011685.5	3.1	.0	.00
DSS15 -OVR 7853	1	87.8-87.8	237345165.0	3.0	.0	.00
DSS15 -OVRO 130	1	87.8-87.8	236711198.1	2.9	.0	.00
DSS15 -YAKATAGA	1	89.6-89.6	3265203803.3	9.8	.0	.00
DSS45 -GILCREEK	8	88.5-90.0	10526654573.4	18.8	49.6	6.48
DSS45 -HOBART26	2	89.9-90.0	832194194.2	8.2	8.2	2.73
DSS45 -KASHIMA	8	88.5-90.0	7436721448.0	15.6	41.2	11.86
DSS45 -KAUAI	9	88.4-90.0	7769504701.3	12.5	35.3	6.90
DSS45 -KWAJAL26	3	88.5-88.6	5171635843.6	35.7	50.5	8.25
DSS45 -MOJAVE12	1	88.4-88.4	10586283452.5	36.5	.0	.00
DSS45 -SESHAN25	7	88.5-90.0	7411128955.0	17.3	42.3	8.79
DSS65 -HRAS 085	1	88.8-88.8	7975454821.4	11.3	.0	.00
DSS65 -MEDICINA	4	88.7-89.1	1378852887.3	1.3	2.2	1.36
DSS65 -MOJAVE12	1	88.8-88.8	8395867404.5	12.8	.0	.00
DSS65 -NOTO	1	89.4-89.4	1711832921.4	2.2	.0	.00
DSS65 -ONSALA60	5	88.8-89.4	2205023112.2	2.1	4.2	3.08
DSS65 -RICHMOND	3	88.7-89.0	6726067089.8	9.8	13.8	2.83
DSS65 -WESTFORD	5	88.7-89.4	5300362822.7	4.7	9.3	4.11
DSS65 -WETTZELL	5	88.7-89.4	1655418185.9	.7	1.4	.47
EFLSBERG-HAYSTACK	8	79.9-83.3	5591903574.1	13.0	34.4	4.15
EFLSBERG-HRAS 085	6	80.6-83.3	8084184845.5	20.2	45.2	2.25
EFLSBERG-NRAO 140	1	79.9-79.9	6334648468.4	36.8	.0	.00
EFLSBERG-ONSALA60	6	80.6-83.3	832210507.0	3.3	7.5	2.77
EFLSBERG-OVRO 130	6	79.9-80.7	8203742499.7	11.9	26.6	1.56
EFLSBERG-ROBLED32	1	83.3-83.3	1414092462.6	9.3	.0	.00
EFLSBERG-WESTFORD	1	83.3-83.3	5592851134.4	16.3	.0	.00
ELY -HATCREEK	9	85.3-89.3	590025841.5	3.2	9.0	3.79
ELY -HRAS 085	10	84.3-89.3	1378547097.8	2.7	8.2	1.72
ELY -MOJAVE12	10	84.3-89.3	475517246.7	4.6	13.9	8.09
ELY -OVRO 130	1	86.3-86.3	378140557.3	4.6	.0	.00
ELY -PLATTVIL	3	84.3-86.3	871865384.7	4.8	6.8	1.08
ELY -VNDNBERG	5	87.4-88.8	734889063.3	3.0	6.0	1.58
ELY -WESTFORD	2	89.3-89.3	3580309237.4	6.2	6.2	.49
ELY -YUMA	3	87.4-88.3	707152514.0	9.0	12.7	2.81
FLAGSTAF-HATCREEK	6	84.3-88.8	1062209381.0	5.1	11.5	3.16
FLAGSTAF-HRAS 085	6	84.3-88.8	879283107.3	2.5	5.7	1.04
FLAGSTAF-MOJAVE12	6	84.3-88.8	478050184.5	2.7	6.0	2.15
FLAGSTAF-PLATTVIL	4	84.3-88.8	820904443.7	4.8	8.4	1.81
FLAGSTAF-VERNAL	2	87.3-88.3	595755609.8	.9	.9	.03
FORT ORD-GILCREEK	4	88.1-88.1	3530381365.7	7.4	12.9	1.17
FORT ORD-HATCREEK	10	84.1-88.1	461111248.6	13.6	40.9	37.96
FORT ORD-HRAS 085	4	85.2-87.8	1774675670.8	20.7	35.8	21.89
FORT ORD-JPL MV1	1	87.8-87.8	426048766.3	5.9	.0	.00
FORT ORD-MOJAVE12	11	83.7-88.1	464719642.9	13.3	41.9	91.18

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
FORT ORD-MON PEAK	1	87.1-87.1	644206242.8	6.8	.0	.00
FORT ORD-OVRO 130	5	83.7-87.8	317067314.0	8.4	16.8	12.63
FORT ORD-PRESIDIO	4	83.7-88.1	139787390.7	9.1	15.8	8.47
FORT ORD-PT REYES	3	87.4-88.1	189551471.3	2.7	3.9	.47
FORT ORD-VNDNBERG	11	83.7-88.1	256852439.2	1.9	5.9	.96
FORTORDS-GILCREEK	13	88.9-89.9	3538522599.2	8.0	27.6	5.52
FORTORDS-HATCREEK	14	88.9-89.9	470018633.1	9.3	33.6	36.77
FORTORDS-HAYSTACK	10	89.8-89.9	4225000759.1	4.1	12.4	1.11
FORTORDS-MOJAVE12	15	88.9-89.9	462074966.9	4.3	15.9	15.13
FORTORDS-OVRO 130	2	88.9-88.9	319006648.6	5.0	5.0	2.09
FORTORDS-PRESIDIO	3	89.8-89.9	147938852.1	4.3	6.1	.99
FORTORDS-PT REYES	5	88.9-89.9	197185366.3	10.5	21.0	12.63
FORTORDS-QUINCY	2	89.8-89.8	382655479.7	1.3	1.3	.07
FORTORDS-VNDNBERG	15	88.9-89.9	248717542.4	6.1	22.9	19.14
FORTORDS-WESTFORD	9	89.8-89.9	4224718638.3	4.5	12.7	1.21
FTD 7900-HRAS 085	1	88.8-88.8	104737.2	3.5	.0	.00
FTD 7900-MOJAVE12	1	88.8-88.8	1313407338.2	3.8	.0	.00
FTD 7900-PIETOWN	1	88.8-88.8	564691751.5	3.3	.0	.00
FTD 7900-WESTFORD	1	88.8-88.8	3134986751.0	6.3	.0	.00
GILCREEK-GOLDVENU	1	88.5-88.5	3827523775.7	4.4	.0	.00
GILCREEK-HALEAKAL	3	88.5-88.5	4837174039.9	8.1	11.4	.94
GILCREEK-HATCREEK	47	85.4-89.9	3126752891.0	2.2	14.6	4.19
GILCREEK-HAYSTACK	78	84.7-89.9	5039482222.5	1.3	11.8	3.64
GILCREEK-HOBART26	4	89.7-90.0	10953029819.9	11.2	19.4	1.06
GILCREEK-HRAS 085	54	84.6-89.5	4725812329.0	1.8	13.4	2.96
GILCREEK-KASHIMA	100	84.6-90.0	5427104368.7	1.4	14.1	2.46
GILCREEK-KAUAI	69	84.5-90.0	4728114602.7	7.8	64.5	76.57
GILCREEK-KODIAK	12	84.6-89.5	848553596.7	2.3	7.5	1.64
GILCREEK-KWAJAL26	20	84.5-88.6	6719676582.6	8.9	38.9	5.47
GILCREEK-MOJAVE12	134	84.5-90.0	3816209156.5	1.2	13.8	6.13
GILCREEK-NOBEY 6M	1	89.9-89.9	5522166149.1	30.4	.0	.00
GILCREEK-NOME	7	84.5-86.6	848263846.2	2.3	5.7	1.01
GILCREEK-ONSALA60	7	85.5-88.9	6066488124.2	3.8	9.4	.87
GILCREEK-OVRO 130	11	85.4-88.9	3584055708.1	5.3	16.7	5.66
GILCREEK-PENTICTN	2	84.6-85.7	2374175671.7	6.3	6.3	.50
GILCREEK-PLATTVIL	8	85.4-89.3	3810424344.3	5.6	14.9	2.47
GILCREEK-PRESIDIO	6	88.1-89.9	3396404661.2	11.8	26.4	4.97
GILCREEK-PT REYES	8	88.1-89.9	3352262211.9	11.5	30.3	7.43
GILCREEK-QUINCY	2	89.8-89.8	3227111801.5	3.2	3.2	.13
GILCREEK-RICHMOND	23	87.3-89.8	6117758531.1	6.5	30.4	2.01
GILCREEK-SESHAN25	9	88.3-90.0	6635555868.2	7.1	20.1	3.66
GILCREEK-SHANGHAI	1	86.5-86.5	6619027667.9	75.9	.0	.00
GILCREEK-SNDPOINT	10	84.5-89.5	1284477833.0	4.1	12.3	3.07
GILCREEK-SOURDOGH	16	84.6-89.6	276378189.0	1.3	5.2	2.06
GILCREEK-VNDNBERG	65	84.5-89.9	3775849569.5	7.8	62.6	68.81
GILCREEK-WESTFORD	73	84.7-89.9	5040099883.3	1.4	11.8	3.80
GILCREEK-WETTZELL	11	84.7-89.9	6856771492.3	5.3	16.8	2.15
GILCREEK-WHTHORSE	9	84.6-89.6	788869898.3	4.1	11.5	7.00
GILCREEK-YAKATAGA	13	84.6-89.6	603048947.8	10.2	35.3	59.47
GILCREEK-YELLOWKN	2	84.6-85.7	1631193656.5	6.6	6.6	1.85

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
GOLDVENU-HAYSTACK	5	81.9-88.5	3900825665.2	5.3	10.7	2.28
GOLDVENU-HRAS 085	3	81.9-82.8	1302373949.2	3.0	4.2	.56
GOLDVENU-MOJ 7288	1	87.8-87.8	12776768.6	2.2	.0	.00
GOLDVENU-MOJAVE12	5	83.7-88.5	12567223.4	1.5	3.0	2.29
GOLDVENU-NRAO 140	1	81.9-81.9	3257509152.6	7.3	.0	.00
GOLDVENU-ONSALA60	3	81.9-82.5	8024928081.3	25.0	35.3	3.05
GOLDVENU-OVR 7853	1	87.8-87.8	258212541.5	2.7	.0	.00
GOLDVENU-OVRO 130	6	81.9-87.8	257587460.7	3.6	8.1	4.02
GOLDVENU-PRESIDIO	1	83.7-83.7	580657656.8	17.3	.0	.00
GOLDVENU-PT REYES	1	83.7-83.7	633483760.2	16.0	.0	.00
GOLDVENU-QUINCY	1	82.8-82.8	639556784.8	6.2	.0	.00
GOLDVENU-VNDNBERG	1	83.7-83.7	357563253.9	11.0	.0	.00
GOLDVENU-WESTFORD	4	81.9-88.5	3900445499.5	6.3	10.9	2.55
GORF7102-HRAS 085	1	89.4-89.4	2618744920.3	6.5	.0	.00
GORF7102-MARPOINT	2	89.4-89.4	79845260.2	3.4	3.4	.89
GORF7102-MOJAVE12	2	89.8-89.8	3506892278.6	6.2	6.2	.82
GORF7102-NRAO85 3	2	89.4-89.4	270278766.2	3.5	3.5	1.53
GORF7102-RICHMOND	4	89.4-89.8	1519989252.3	3.6	6.2	1.03
GORF7102-WESTFORD	4	89.4-89.8	600947760.3	5.0	8.6	4.56
GRASSE -MOJAVE12	1	89.7-89.7	8701934665.9	21.4	.0	.00
GRASSE -NOTO	2	89.7-89.7	1024494288.1	2.9	2.9	.92
GRASSE -RICHMOND	1	89.7-89.7	7392007117.4	20.4	.0	.00
GRASSE -WESTFORD	1	89.7-89.7	5890367617.7	12.8	.0	.00
GRASSE -WETTZELL	4	89.7-89.7	753160843.3	1.2	2.0	.43
HALEAKAL-KAUAI	3	88.5-88.5	386841607.3	1.8	2.6	.52
HALEAKAL-MOJAVE12	3	88.5-88.5	4090637544.0	12.3	17.3	3.42
HARTRAO -HRAS 085	6	87.1-89.2	11878469229.7	15.6	34.9	1.07
HARTRAO -MEDICINA	3	88.0-89.1	7453222489.0	19.8	28.1	2.84
HARTRAO -MOJAVE12	1	90.0-90.0	12260678930.7	48.8	.0	.00
HARTRAO -ONSALA60	5	86.0-88.0	8525165608.5	7.3	14.6	.32
HARTRAO -RICHMOND	18	86.0-90.0	10814591270.1	11.3	46.6	1.59
HARTRAO -WESTFORD	23	86.0-89.2	10658658430.0	9.1	42.7	1.59
HARTRAO -WETTZELL	16	86.0-90.0	7832322561.8	5.8	22.3	1.45
HATCREEK-HAYSTACK	26	83.4-89.9	4032976744.3	3.4	17.2	4.61
HATCREEK-HRAS 085	62	83.4-89.4	1933473664.4	2.1	16.6	6.99
HATCREEK-JPL MV1	2	83.5-87.8	789070012.0	41.7	41.7	86.18
HATCREEK-KASHIMA	15	84.1-89.8	7557328239.8	6.5	24.3	3.94
HATCREEK-KAUAI	15	85.4-89.8	4061718596.9	1.6	6.0	.75
HATCREEK-KODIAK	2	87.5-87.5	2870190267.8	2.0	2.0	.08
HATCREEK-MAMMOTHL	1	83.5-83.5	414535910.0	9.1	.0	.00
HATCREEK-MOJAVE12	111	83.5-89.9	729148668.7	.6	6.6	2.30
HATCREEK-MON PEAK	20	83.5-89.4	986815230.4	10.9	47.5	52.26
HATCREEK-OVRO 130	32	83.4-88.9	484321527.2	1.5	8.6	3.42
HATCREEK-PLATTVIL	20	83.4-89.3	1416314065.4	2.3	9.9	2.77
HATCREEK-PRESIDIO	12	85.8-89.9	344991841.7	7.2	23.8	17.37
HATCREEK-PT REYES	14	84.2-89.9	326628739.7	7.7	27.8	21.26
HATCREEK-PVERDES	2	89.1-89.1	830152854.4	4.8	4.8	.90
HATCREEK-QUINCY	12	83.5-89.8	103712237.7	2.3	7.5	2.31
HATCREEK-SANPAULA	2	89.1-89.1	745783186.8	7.1	7.1	3.24
HATCREEK-SNDPOINT	1	87.6-87.6	3229864755.4	545.3	.0	.00

TABLE 6.1 (continued)						
BASELINE	NUM	SPAN	VALUE	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	mm	SQR
HATCREEK-VERNAL	6	86.2-89.3	1007489460.8	6.9	15.4	10.53
HATCREEK-VNDNBERG	79	84.1-89.9	698706387.3	5.3	46.7	93.56
HATCREEK-WESTFORD	24	83.4-89.9	4032819079.7	3.4	16.1	4.08
HATCREEK-YAKATAGA	3	87.6-87.6	2569202487.0	7.3	10.3	1.17
HATCREEK-YUMA	12	85.2-88.8	1086071223.9	4.4	14.6	5.30
HAYSTACK-HRAS 085	622	80.3-89.5	3135640996.4	.5	12.8	2.62
HAYSTACK-KASHIMA	10	84.7-89.9	9501779932.6	13.0	39.1	5.19
HAYSTACK-KODIAK	6	88.5-89.5	5466172811.5	5.3	11.8	.59
HAYSTACK-MARPOINT	11	82.5-89.4	677293411.6	3.1	9.8	3.56
HAYSTACK-MOJAVE12	151	83.5-90.0	3904144258.1	.8	9.7	2.88
HAYSTACK-NRAO 140	10	79.6-88.8	845129850.3	1.7	5.1	2.78
HAYSTACK-ONSALA60	170	80.6-89.9	5599714560.3	3.2	41.8	19.33
HAYSTACK-OVRO 130	57	79.6-88.8	3928881641.3	1.9	13.9	3.13
HAYSTACK-PLATTVIL	10	83.4-89.3	2753205396.0	4.8	14.4	3.70
HAYSTACK-PRESIDIO	5	89.8-89.9	4224649410.8	9.2	18.3	1.43
HAYSTACK-ROBLED32	2	83.3-83.3	5299699246.8	4.2	4.2	.04
HAYSTACK-VNDNBERG	11	89.8-89.9	4229299746.1	4.3	13.6	2.37
HAYSTACK-WESTFORD	12	81.4-89.8	1239396.4	1.1	3.6	1.07
HAYSTACK-WETTZELL	491	83.9-90.0	5997390762.2	1.2	25.8	6.50
HAYSTACK-YAKATAGA	5	88.6-89.6	4895243290.4	8.4	16.9	1.88
HOBART26-KASHIMA	4	89.7-90.0	8071140649.4	7.2	12.4	.90
HOBART26-KAUAI	3	89.7-90.0	8268576652.1	12.0	17.0	1.68
HOBART26-MOJAVE12	1	90.0-90.0	10845184295.4	18.6	.0	.00
HOBART26-SESHAN25	1	90.0-90.0	7965496535.2	17.0	.0	.00
HOHENFRG-MOJAVE12	2	89.5-89.5	8257097572.4	4.9	4.9	.11
HOHENFRG-NOTO	5	89.5-89.5	1825225879.2	2.2	4.4	.90
HOHENFRG-RICHMOND	2	89.5-89.5	7347945800.5	.2	.2	.00
HOHENFRG-WESTFORD	2	89.5-89.5	5694164255.8	9.9	9.9	1.06
HOHENFRG-WETTZELL	5	89.5-89.5	465777112.9	1.0	1.9	.50
HRAS 085-JPL MV1	3	82.8-87.8	1391413646.2	46.0	65.0	86.65
HRAS 085-KASHIMA	26	87.3-89.5	9027663352.7	11.8	59.1	3.04
HRAS 085-KODIAK	1	89.5-89.5	4645400661.5	17.7	.0	.00
HRAS 085-LEONRDOK	1	87.6-87.6	957117024.4	4.7	.0	.00
HRAS 085-MAMMOTHL	1	83.5-83.5	1580143779.6	10.1	.0	.00
HRAS 085-MARPOINT	3	82.8-89.4	2570813368.2	9.1	12.9	4.99
HRAS 085-MCD 7850	1	88.8-88.8	8125163.1	2.5	.0	.00
HRAS 085-MEDICINA	12	87.3-89.1	8604525549.5	8.2	27.1	2.08
HRAS 085-MILESMON	1	88.3-88.3	1751993827.8	8.2	.0	.00
HRAS 085-MOJAVE12	123	83.5-89.4	1313368172.5	.9	10.2	6.47
HRAS 085-MON PEAK	33	82.8-89.4	1205751648.5	10.4	59.0	99.24
HRAS 085-NRAO 140	6	80.3-88.8	2354634004.0	2.9	6.4	2.08
HRAS 085-NRAO85 3	1	89.4-89.4	2353779380.2	4.7	.0	.00
HRAS 085-ONSALA60	108	80.6-89.4	7940732253.9	4.1	42.6	3.63
HRAS 085-OVRO 130	73	80.3-88.8	1508195408.2	2.5	20.9	13.31
HRAS 085-PENTICTN	3	84.6-85.7	2443354518.9	8.1	11.5	.90
HRAS 085-PIETOWN	3	88.7-88.8	564620891.7	.6	.8	.18
HRAS 085-PINFLATS	5	85.8-87.0	1223294550.1	4.8	9.5	2.67
HRAS 085-PLATTVIL	20	83.4-89.3	1060499648.1	1.7	7.3	1.50
HRAS 085-PRESIDIO	4	85.2-87.1	1870585829.4	8.4	14.5	3.79
HRAS 085-PT REYES	2	85.2-85.8	1921015699.6	3.2	3.2	.19

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
HRAS 085-QUINCY	14	82.8-89.3	1849591450.2	6.0	21.5	8.72
HRAS 085-RICHMOND	342	84.0-89.5	2362632825.8	.5	9.8	1.61
HRAS 085-ROBLED32	1	83.3-83.3	7975530242.7	44.3	.0	.00
HRAS 085-VERNAL	6	86.2-89.3	1187981358.2	3.5	7.7	2.22
HRAS 085-VNDNBERG	44	83.9-89.4	1617713895.8	7.5	49.0	70.43
HRAS 085-WESTFORD	586	81.4-89.5	3134928007.2	.5	12.8	2.67
HRAS 085-WETTZELL	404	83.9-89.5	8417561514.5	1.5	29.2	1.96
HRAS 085-YELLOWKN	2	84.6-85.7	3572069870.5	6.3	6.3	.31
HRAS 085-YUMA	18	83.8-88.8	1002949389.9	1.9	7.9	2.52
JPL MV1 -MAMMOTHL	4	83.5-86.8	387649673.8	12.3	21.3	6.54
JPL MV1 -MOJAVE12	21	83.5-88.8	171686437.1	3.1	14.0	7.25
JPL MV1 -MON PEAK	1	82.8-82.8	218307738.1	8.4	.0	.00
JPL MV1 -OVRO 130	19	82.8-88.8	335941401.8	6.1	26.0	11.54
JPL MV1 -PBLOSSOM	7	83.1-88.0	41155684.5	2.8	7.0	.92
JPL MV1 -PINFLATS	6	83.8-87.0	171805089.5	2.6	5.9	1.30
JPL MV1 -PRESIDIO	2	88.8-88.8	555228197.8	3.9	3.9	.76
JPL MV1 -QUINCY	1	82.8-82.8	685704820.8	79.3	.0	.00
JPL MV1 -VNDNBERG	18	83.6-88.8	228030979.5	3.3	13.4	7.12
KASHIMA -KAUAI	60	84.6-90.0	5709360258.9	12.6	96.7	127.45
KASHIMA -KWAJAL26	16	84.6-88.6	3936330625.6	23.7	91.8	81.40
KASHIMA -MOJAVE12	46	84.1-90.0	8091824101.2	3.4	22.7	3.11
KASHIMA -NOBEY 6M	1	89.9-89.9	197660883.9	11.1	.0	.00
KASHIMA -ONSALA60	6	85.5-88.9	7969643037.8	17.5	39.2	7.00
KASHIMA -RICHMOND	24	87.3-89.8	10279840848.0	12.2	58.5	1.78
KASHIMA -SESHAN25	9	88.3-90.0	1875920096.2	6.4	18.2	14.16
KASHIMA -SHANGHAI	1	86.5-86.5	1852075226.8	34.8	.0	.00
KASHIMA -VNDNBERG	26	85.4-89.8	7913888157.5	10.6	53.1	18.43
KASHIMA -WESTFORD	8	85.5-89.9	9502316513.7	11.0	29.2	3.32
KASHIMA -WETTZELL	10	84.7-89.9	8475826912.5	17.0	50.9	9.65
KASHIMA -WHTHORSE	1	89.6-89.6	6047388095.1	23.8	.0	.00
KAUAI -KWAJAL26	20	84.5-88.6	3725196309.4	3.4	14.9	2.07
KAUAI -MOJAVE12	39	84.5-89.7	4303581279.0	4.9	30.1	18.62
KAUAI -SESHAN25	9	88.3-90.0	7310294045.4	15.9	44.9	14.81
KAUAI -SHANGHAI	1	86.5-86.5	7290813138.9	68.9	.0	.00
KAUAI -VNDNBERG	31	84.5-89.8	3972522445.6	2.7	14.6	4.11
KAUAI -WHTHORSE	1	89.6-89.6	4587139193.0	18.0	.0	.00
KODIAK -MOJAVE12	7	87.5-89.5	3574416151.0	4.2	10.3	1.10
KODIAK -NOME	4	84.6-86.6	1024053279.3	8.9	15.5	1.97
KODIAK -VNDNBERG	4	84.6-86.6	3459022112.0	17.0	29.4	3.38
KODIAK -WESTFORD	5	88.5-89.5	5466634658.9	6.2	12.4	.71
KWAJAL26-MOJAVE12	17	84.5-88.6	7576938604.0	6.8	27.3	2.36
KWAJAL26-SESHAN25	3	88.5-88.6	5191948381.7	9.3	13.1	1.01
KWAJAL26-VNDNBERG	12	84.5-88.6	7298104558.6	8.8	29.2	3.10
LEONRDOK-RICHMOND	1	87.6-87.6	1854619798.8	6.4	.0	.00
LEONRDOK-WESTFORD	1	87.6-87.6	2205062324.5	6.4	.0	.00
MAMMOTHL-MOJAVE12	4	83.5-86.8	315785216.5	4.5	7.8	1.79
MAMMOTHL-OVRO 130	4	83.5-86.8	74255492.5	3.9	6.7	1.88
MAMMOTHL-VNDNBERG	2	84.8-86.8	373995444.1	10.2	10.2	5.85
MARPOINT-NRAO85	3	89.4-89.4	228306384.7	7.1	7.1	11.31
MARPOINT-ONSALA60	4	82.5-83.7	6198441060.5	2.7	4.7	.10

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
MARPOINT-OVRO 130	3	82.5-82.8	3540824485.7	2.6	3.6	.16
MARPOINT-RICHMOND	5	87.6-89.4	1442649208.8	8.1	16.2	6.94
MARPOINT-WESTFORD	9	82.5-89.4	676178921.7	4.0	11.4	4.37
MCD 7850-MOJAVE12	1	88.8-88.8	1305462980.8	3.2	.0	.00
MCD 7850-PIETOWN	1	88.8-88.8	556665226.1	2.5	.0	.00
MCD 7850-WESTFORD	1	88.8-88.8	3137645298.0	4.1	.0	.00
MEDICINA-ONSALA60	7	87.3-89.1	1429470397.7	1.4	3.5	1.80
MEDICINA-RICHMOND	13	87.3-89.0	7658214932.9	6.6	22.7	2.15
MEDICINA-WESTFORD	19	87.3-89.1	6144872372.1	2.3	9.7	1.30
MEDICINA-WETTZELL	15	87.3-89.1	522461128.9	.9	3.2	1.64
METSHOVI-MOJAVE12	1	89.5-89.5	8149935242.5	29.9	.0	.00
METSHOVI-ONSALA60	4	89.5-89.5	784441963.1	4.5	7.8	3.44
METSHOVI-RICHMOND	1	89.5-89.5	7758613738.3	28.7	.0	.00
METSHOVI-WESTFORD	1	89.5-89.5	6059189109.9	21.6	.0	.00
METSHOVI-WETTZELL	4	89.5-89.5	1433414941.5	2.2	3.8	.57
MILESMON-MOJAVE12	1	88.3-88.3	1534074217.7	8.0	.0	.00
MILESMON-WESTFORD	1	88.3-88.3	2722126743.4	10.7	.0	.00
MOJ 7288-MOJAVE12	1	87.8-87.8	358197.1	1.6	.0	.00
MOJ 7288-OVR 7853	1	87.8-87.8	245751410.6	2.9	.0	.00
MOJ 7288-OVRO 130	1	87.8-87.8	245135040.2	2.7	.0	.00
MOJAVE12-MON PEAK	32	83.5-89.4	274055792.3	6.4	35.7	53.04
MOJAVE12-NOBEY 6M	1	89.9-89.9	8216104517.5	44.4	.0	.00
MOJAVE12-NOTO	4	89.5-89.7	9422863866.3	6.7	11.5	.53
MOJAVE12-NRAO 140	1	88.8-88.8	3262601940.2	3.9	.0	.00
MOJAVE12-OCOTILLO	3	84.2-85.2	299368637.0	7.2	10.2	2.52
MOJAVE12-ONSALA60	26	83.8-89.9	8021117520.0	4.6	23.1	3.61
MOJAVE12-OVR 7853	1	87.8-87.8	245893864.4	2.3	.0	.00
MOJAVE12-OVRO 130	72	83.5-88.9	245276453.4	.8	7.1	3.30
MOJAVE12-PBLOSSOM	9	83.6-88.1	131184783.6	2.5	7.0	2.29
MOJAVE12-PIETOWN	3	88.7-88.8	809730822.2	3.9	5.6	11.18
MOJAVE12-PINFLATS	19	83.8-88.4	195109716.7	3.7	15.8	7.80
MOJAVE12-PLATTVIL	19	84.3-89.3	1196316952.0	1.7	7.0	1.73
MOJAVE12-PRESIDIO	18	83.7-89.9	568654973.4	7.6	31.3	39.80
MOJAVE12-PT REYES	16	83.7-89.9	621424845.5	10.0	38.8	62.88
MOJAVE12-PVERDES	7	83.9-89.1	224483711.7	2.8	6.9	1.68
MOJAVE12-QUINCY	15	83.5-89.8	627137774.3	2.5	9.2	3.64
MOJAVE12-RICHMOND	45	84.0-90.0	3594693016.0	1.4	9.4	1.81
MOJAVE12-SANPAULA	8	83.7-89.1	219618292.5	7.2	19.1	14.10
MOJAVE12-SEATTLE1	1	86.7-86.7	1439349364.6	8.2	.0	.00
MOJAVE12-SNDPOINT	7	87.6-89.5	3916865264.2	7.5	18.3	2.57
MOJAVE12-SOURDOGH	8	87.6-89.6	3577769376.1	5.4	14.4	2.16
MOJAVE12-TROMSONO	1	89.6-89.6	7344759270.6	15.5	.0	.00
MOJAVE12-VERNAL	6	86.2-89.3	848884616.8	2.5	5.6	1.61
MOJAVE12-VNDNBERG	149	83.6-89.9	351282525.1	2.0	24.6	50.69
MOJAVE12-WESTFORD	144	83.5-90.0	3903767754.8	.8	9.7	2.91
MOJAVE12-WETTZELL	62	84.7-90.0	8588976446.6	2.9	22.8	3.47
MOJAVE12-WHTHORSE	5	88.6-89.6	3076518260.8	8.8	17.6	5.34
MOJAVE12-YAKATAGA	7	87.6-89.6	3273878607.7	9.3	22.9	6.63
MOJAVE12-YUMA	21	83.8-88.8	362912398.3	2.2	9.8	5.24
MON PEAK-OVRO 130	18	82.8-88.8	510423733.0	11.6	47.7	67.04

TABLE 6.1 (continued)						
BASELINE	NUM OBS	SPAN yr to yr	VALUE mm	ERROR mm	WRMS mm	CHI SQR
MON PEAK-QUINCY	11	83.5-88.8	883538179.4	15.6	49.4	47.47
MON PEAK-VNDNBERG	26	83.9-89.4	430216039.6	2.3	11.5	7.19
MON PEAK-YUMA	8	83.8-87.9	207726999.5	10.2	26.9	55.19
NOME -SNDPOINT	3	84.5-86.6	1060002873.6	3.9	5.5	.44
NOME -VNDNBERG	7	84.5-86.6	4388694141.8	19.2	47.1	5.89
NOTO -ONSALA60	2	89.4-89.7	2280154888.0	3.6	3.6	2.31
NOTO -RICHMOND	3	89.5-89.7	8115263547.8	6.6	9.4	.53
NOTO -WESTFORD	5	89.4-89.7	6744637364.6	6.6	13.1	2.19
NOTO -WETTZELL	12	89.4-89.7	1371101058.4	1.4	4.5	1.83
NRAO 140-ONSALA60	4	81.9-83.0	6319317555.5	13.2	22.8	2.57
NRAO 140-OVRO 130	8	79.6-88.8	3324244207.6	5.4	14.2	7.00
NRAO 140-WESTFORD	5	81.9-88.8	844148085.0	1.9	3.8	1.81
NRAO85 3-RICHMOND	2	89.4-89.4	1419169131.0	4.7	4.7	1.45
NRAO85 3-WESTFORD	2	89.4-89.4	845216066.0	4.1	4.1	2.20
OCOTILLO-OVRO 130	1	85.2-85.2	542313245.5	7.2	.0	.00
OCOTILLO-PVERDES	1	85.2-85.2	264927264.5	5.7	.0	.00
OCOTILLO-VNDNBERG	3	84.2-85.2	487851103.0	9.2	13.0	2.95
ONSALA60-OVRO 130	33	80.6-87.8	7914130998.0	7.9	44.7	5.80
ONSALA60-RICHMOND	52	84.1-89.9	7307152564.8	3.5	24.8	2.00
ONSALA60-ROBLED32	1	83.3-83.3	2204783307.6	13.1	.0	.00
ONSALA60-TROMSONO	4	89.6-89.6	1406156765.8	6.8	11.7	5.58
ONSALA60-WESTFORD	132	81.4-89.9	5600741514.9	2.4	27.4	8.81
ONSALA60-WETTZELL	110	83.9-89.9	919660997.5	.5	4.7	2.11
OVR 7853-OVRO 130	1	87.8-87.8	991123.1	1.6	.0	.00
OVRO 130-PBLOSSOM	7	83.1-87.8	303497804.3	4.6	11.2	2.23
OVRO 130-PINFLATS	7	83.8-86.8	434649341.0	6.4	15.6	4.65
OVRO 130-PLATTVIL	9	83.4-88.3	1220818762.2	3.2	9.0	2.94
OVRO 130-PRESIDIO	8	83.7-88.8	374258371.4	10.6	28.0	37.89
OVRO 130-PT REYES	6	83.7-88.9	421766818.9	18.5	41.3	54.86
OVRO 130-PVERDES	2	83.9-85.2	387094562.3	14.9	14.9	4.70
OVRO 130-QUINCY	11	82.8-88.8	382696345.6	3.2	10.1	3.89
OVRO 130-SANPAULA	1	83.7-83.7	322080185.7	11.8	.0	.00
OVRO 130-VNDNBERG	46	83.6-88.9	363980309.8	2.3	15.6	7.73
OVRO 130-WESTFORD	29	81.5-88.8	3928579369.2	2.4	12.7	3.16
OVRO 130-WETTZELL	7	85.2-87.8	8500205009.3	11.4	28.0	4.90
OVRO 130-YUMA	7	83.8-87.8	603989382.0	2.1	5.1	.86
PBLOSSOM-SANPAULA	1	88.1-88.1	99880794.4	7.2	.0	.00
PBLOSSOM-VNDNBERG	9	83.6-88.1	247362521.8	8.1	23.0	21.32
PENTICTN-YELLOWKN	2	84.6-85.7	1495292888.1	3.7	3.7	.20
PIETOWN -WESTFORD	3	88.7-88.8	3262799681.2	4.4	6.3	4.00
PINFLATS-PVERDES	3	87.2-88.1	180972819.4	2.2	3.1	.53
PINFLATS-VNDNBERG	18	83.8-88.4	397781414.6	4.2	17.4	9.03
PINFLATS-YUMA	6	83.8-87.0	222910497.4	8.0	17.9	13.32
PLATTVIL-VERNAL	1	86.2-86.2	412425203.0	4.1	.0	.00
PLATTVIL-WESTFORD	9	83.4-89.3	2752862690.0	4.9	13.9	3.70
PRESIDIO-PT REYES	3	83.7-85.8	53727233.5	1.1	1.6	.09
PRESIDIO-VNDNBERG	18	83.7-89.9	396580068.3	5.9	24.2	16.04
PRESIDIO-WESTFORD	4	89.8-89.9	4224409667.3	12.0	20.8	1.90
PRESIDIO-YUMA	1	87.1-87.1	922582255.5	7.0	.0	.00
PT REYES-VNDNBERG	16	83.7-89.9	445233364.8	2.0	7.8	1.90

TABLE 6.1 (continued)						
BASELINE	NUM	SPAN	VALUE	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	mm	SQR
PT REYES-WESTFORD	4	89.8-89.9	4248545097.7	8.9	15.4	1.08
PT REYES-YUMA	1	87.8-87.8	975980358.2	10.6	.0	.00
PVERDES -VNDNBERG	7	83.9-89.1	223065180.4	4.3	10.5	4.35
QUINCY -VNDNBERG	13	84.3-89.8	601887715.4	11.9	41.4	56.94
QUINCY -WESTFORD	2	89.8-89.8	4023819276.4	9.3	9.3	.79
RICHMOND-TROMSONO	1	89.6-89.6	7249939432.0	16.4	.0	.00
RICHMOND-WESTFORD	388	84.0-90.0	2044501755.8	.4	8.1	1.47
RICHMOND-WETTZELL	367	84.1-90.0	7588398540.3	1.4	27.0	2.31
ROBLED32-WESTFORD	1	83.3-83.3	5300462998.4	30.9	.0	.00
SANPAULA-VNDNBERG	8	83.7-89.1	149776487.9	2.2	5.9	1.39
SEATTLE1-WESTFORD	1	86.7-86.7	3895645968.1	14.2	.0	.00
SNDPOINT-VNDNBERG	3	84.5-86.6	3763664070.9	26.0	36.7	5.91
SNDPOINT-WESTFORD	5	88.5-89.5	5963589375.6	11.7	23.4	2.33
SOURDOGH-VNDNBERG	8	84.6-86.6	3527017009.4	10.8	28.6	4.25
SOURDOGH-WESTFORD	6	88.6-89.6	4992696137.7	5.4	12.1	.98
SOURDOGH-WHTHORSE	3	84.6-86.6	591316578.8	2.9	4.2	.56
SOURDOGH-YAKATAGA	4	84.6-86.6	329299234.5	18.1	31.3	34.52
TROMSONO-WESTFORD	1	89.6-89.6	5474070355.6	11.2	.0	.00
TROMSONO-WETTZELL	4	89.6-89.6	2296324585.4	8.2	14.2	5.33
VERNAL -VNDNBERG	1	88.8-88.8	1165722332.5	4.5	.0	.00
VERNAL -WESTFORD	2	89.3-89.3	3132148581.3	9.4	9.4	1.47
VERNAL -YUMA	1	88.8-88.8	917552143.9	5.6	.0	.00
VNDNBERG-WESTFORD	10	89.8-89.9	4228947335.0	4.5	13.5	2.46
VNDNBERG-WHTHORSE	3	84.6-86.6	3058395618.1	20.1	28.4	5.61
VNDNBERG-YAKATAGA	4	84.6-86.6	3214772164.2	11.1	19.2	2.17
VNDNBERG-YUMA	19	83.8-88.8	620341829.8	9.3	39.6	74.47
WESTFORD-WETTZELL	485	83.9-90.0	5998325401.4	1.1	25.1	6.14
WESTFORD-WHTHORSE	4	88.6-89.6	4511164127.8	11.8	20.5	3.98
WESTFORD-YAKATAGA	4	88.6-89.6	4895738325.5	10.5	18.2	2.40

TABLE 6.2
LENGTH STATISTICAL SUMMARY
RATE OF CHANGE

BASELINE	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR	EPOCH VALUE	EPOCH CORRE- ERROR LATION
BLKBUTTE-HRAS 085	4.8	3.3	6.7	2.64	1158018147.9	4.20 .38
BLKBUTTE-MOJAVE12	2.6	2.0	7.1	2.16	213868855.3	2.82 .60
BLKBUTTE-VNDNBERG	28.1	2.1	7.1	2.44	462367712.9	2.72 .56
DEADMANL-MOJAVE12	4.1	8.3	11.9	4.44	131806791.2	7.64 .43
DEADMANL-VNDNBERG	34.0	10.4	16.6	4.83	400134234.1	12.09 .61
EFLSBERG-HAYSTACK	23.7	4.2	13.6	.76	5591903719.9	26.17 .98
EFLSBERG-HRAS 085	23.9	12.7	32.9	1.49	8084184998.4	82.84 .98
EFLSBERG-ONSALA60	1.0	2.8	7.3	3.35	832210513.6	18.15 .98
ELY -HATCREEK	3.9	1.9	7.1	2.70	590025841.5	2.70 .01
ELY -HRAS 085	.7	2.0	8.2	1.90	1378547097.8	2.89 .00
ELY -MOJAVE12	-7.0	2.0	8.8	3.65	475517246.1	3.12 .06
FLAGSTAF-HATCREEK	8.1	2.1	5.2	.83	1062209392.8	4.01 .76
FLAGSTAF-HRAS 085	2.5	2.0	4.8	.93	879283110.5	3.50 .73
FLAGSTAF-MOJAVE12	2.8	2.0	4.9	1.82	478050188.1	3.63 .73
FORT ORD-HATCREEK	-29.7	3.8	14.0	4.98	461111213.9	6.65 .67
FORT ORD-MOJAVE12	32.8	1.6	5.9	2.00	464719670.3	2.35 .55
FORT ORD-OVRO 130	13.5	1.2	2.6	.40	317067346.0	3.25 .89
FORT ORD-VNDNBERG	.7	1.5	5.9	1.05	256852439.8	2.44 .60
GILCREEK-HATCREEK	-7.2	1.1	10.3	2.15	3126752891.0	1.54 .00
GILCREEK-HAYSTACK	1.7	1.1	11.6	3.58	5039482222.1	1.36 -.21
GILCREEK-HRAS 085	3.4	1.9	13.1	2.86	4725812329.3	1.82 .09
GILCREEK-KASHIMA	-1.7	1.0	13.8	2.40	5427104368.2	1.42 .17
GILCREEK-KAUAI	-45.3	.9	10.2	1.94	4728114593.2	1.26 .15
GILCREEK-KODIAK	-5.3	1.1	4.2	.56	848553597.5	1.33 -.12
GILCREEK-KWAJAL26	-22.9	3.7	22.1	1.86	6719676547.3	7.75 .74
GILCREEK-MOJAVE12	-8.6	.6	8.8	2.47	3816209156.6	.76 .00
GILCREEK-NOME	.7	3.0	5.6	1.20	848263847.8	7.38 .94
GILCREEK-ONSALA60	2.9	3.3	8.7	.91	6066488124.8	3.95 .17
GILCREEK-OVRO 130	-16.5	2.3	6.6	.97	3584055700.6	2.43 .44
GILCREEK-PLATTVIL	8.3	3.3	10.3	1.39	3810424344.9	4.23 .06
GILCREEK-RICHMOND	8.0	8.0	29.7	2.01	6117758526.7	7.79 -.56
GILCREEK-SNDPOINT	3.8	2.9	11.2	2.86	1284477830.9	4.28 -.39
GILCREEK-SOURDOGH	.0	.9	5.2	2.21	276378189.1	1.42 .21
GILCREEK-VNDNBERG	-40.5	1.1	12.8	2.94	3775849556.2	1.65 .21
GILCREEK-WESTFORD	2.3	1.2	11.5	3.67	5040099882.7	1.40 -.22
GILCREEK-WETTZELL	3.9	3.1	15.5	2.04	6856771492.2	5.16 -.02
GILCREEK-WHTHORSE	-4.1	3.6	10.6	6.76	788869900.8	4.57 -.49
GILCREEK-YAKATAGA	-25.2	1.9	8.5	3.72	603048952.8	2.58 -.15
GOLDVENU-HAYSTACK	.9	1.8	10.2	2.78	3900825668.0	7.88 .66
GOLDVENU-MOJAVE12	.4	.8	2.8	2.85	12567224.2	2.40 .73
GOLDVENU-OVRO 130	2.0	1.2	6.2	2.92	257587466.9	4.76 .76
HARTRAO -HRAS 085	2.6	21.2	34.8	1.33	11878469227.8	23.16 -.66

TABLE 6.2 (continued)							
BASILINE	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR	EPOCH VALUE	EPOCH ERROR	CORRE- LATION
HARTRAO -RICHMOND	3.2	11.5	46.5	1.69	10814591272.2	14.08	.57
HARTRAO -WESTFORD	6.0	8.3	42.1	1.62	10658658432.2	9.67	.31
HARTRAO -WETTZELL	-1.0	5.6	22.3	1.55	7832322561.4	6.42	.37
HATCREEK-HAYSTACK	5.8	1.7	14.0	3.17	4032976740.8	3.03	-.33
HATCREEK-HRAS 085	8.3	.8	9.6	2.38	1933473666.8	1.26	.17
HATCREEK-KASHIMA	-10.3	3.7	19.2	2.65	7557328230.9	6.21	.51
HATCREEK-KAUAI	1.7	1.1	5.5	.69	4061718597.7	1.61	.31
HATCREEK-MOJAVE12	-.6	.4	6.5	2.26	729148668.7	.62	.02
HATCREEK-MON PEAK	-27.9	1.8	12.2	3.67	986815217.3	3.00	.27
HATCREEK-OVRO 130	-2.4	.8	7.5	2.68	484321523.6	1.79	.65
HATCREEK-PLATTVIL	4.3	1.0	6.9	1.41	1416314069.2	1.84	.47
HATCREEK-PRESIDIO	-14.8	1.4	6.6	1.48	344991838.3	2.11	.15
HATCREEK-PT REYES	-20.0	1.6	7.4	1.64	326628749.9	2.30	-.36
HATCREEK-QUINCY	-3.3	.7	4.1	.78	103712237.2	1.32	.08
HATCREEK-VERNAL	11.9	2.6	6.2	2.13	1007489458.2	3.15	-.18
HATCREEK-VNDNBERG	-33.3	.7	8.1	2.88	698706400.7	.97	-.28
HATCREEK-WESTFORD	5.1	2.1	14.3	3.34	4032819075.5	3.48	-.49
HATCREEK-YUMA	9.7	3.7	11.2	3.42	1086071227.7	3.83	.38
HAYSTACK-HRAS 085	-1.8	.2	12.3	2.41	3135640995.3	.52	.29
HAYSTACK-KASHIMA	-12.0	5.8	31.5	3.81	9501779928.3	11.34	.18
HAYSTACK-MARPOINT	.7	1.0	9.6	3.77	677293413.3	4.05	.62
HAYSTACK-MOJAVE12	.3	.5	9.7	2.89	3904144258.0	.83	-.28
HAYSTACK-NRAO 140	-.7	.7	4.8	2.71	845129846.4	3.84	.90
HAYSTACK-ONSALA60	16.2	.5	14.8	2.44	5599714582.4	1.31	.49
HAYSTACK-OVRO 130	3.3	.5	10.3	1.75	3928881654.1	2.37	.81
HAYSTACK-PLATTVIL	6.2	2.8	11.3	2.58	2753205398.3	4.15	.26
HAYSTACK-WESTFORD	.1	.5	3.6	1.17	1239396.9	2.21	.85
HAYSTACK-WETTZELL	14.8	.4	12.7	1.59	5997390761.2	.58	-.04
HRAS 085-KASHIMA	17.9	18.0	57.9	3.04	9027663345.1	14.06	-.54
HRAS 085-MOJAVE12	5.0	.4	6.9	2.93	1313368175.1	.66	.32
HRAS 085-MON PEAK	34.3	.9	8.7	2.21	1205751673.5	1.69	.39
HRAS 085-NRAO 140	-1.0	.8	5.5	1.89	2354634001.2	3.57	.64
HRAS 085-ONSALA60	12.5	1.3	30.6	1.89	7940732267.2	3.25	.41
HRAS 085-OVRO 130	7.6	.3	7.5	1.71	1508195427.4	1.24	.70
HRAS 085-PLATTVIL	-.8	1.1	7.1	1.53	1060499647.4	1.92	.48
HRAS 085-QUINCY	8.2	2.5	15.7	5.03	1849591451.7	4.56	.10
HRAS 085-RICHMOND	1.4	.4	9.6	1.54	2362632826.0	.52	.13
HRAS 085-VERNAL	.3	3.4	7.7	2.76	1187981358.1	4.00	-.25
HRAS 085-VNDNBERG	35.9	.9	8.0	1.91	1617713902.5	1.24	.14
HRAS 085-WESTFORD	-2.0	.3	12.3	2.45	3134928006.2	.52	.25
HRAS 085-WETTZELL	11.8	.9	24.1	1.34	8417561514.4	1.20	-.01
HRAS 085-YUMA	1.3	1.8	7.8	2.60	1002949391.1	2.53	.64
JPL MV1 -MOJAVE12	6.4	1.2	8.8	3.05	171686447.4	2.80	.69
JPL MV1 -OVRO 130	-10.9	1.8	14.6	3.83	335941379.3	5.11	.72
JPL MV1 -PBLOSSOM	-2.0	2.0	6.3	.91	41155679.6	5.58	.86
JPL MV1 -PINFLATS	5.4	2.1	3.6	.61	171805098.8	4.03	.89
JPL MV1 -VNDNBERG	8.5	1.5	7.8	2.55	228030988.0	2.47	.62
KASHIMA -KAUAI	-65.6	1.2	13.1	2.36	5709360242.0	1.74	.17
KASHIMA -KWAJAL26	-71.1	2.7	12.9	1.72	3936330514.6	5.43	.77
KASHIMA -MOJAVE12	-7.3	1.8	19.3	2.30	8091824095.6	3.21	.42

TABLE 6.2 (continued)								
BASELINE	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR	EPOCH VALUE	EPOCH ERROR	CORRE- LATION	
KASHIMA -ONSALA60	-20.7	9.8	27.0	4.14	7969643027.2	14.41	.35	
KASHIMA -RICHMOND	15.8	15.2	57.1	1.78	10279840841.1	13.86	-.48	
KASHIMA -VNDNBERG	-36.1	3.6	23.5	3.76	7913888129.7	5.56	.50	
KASHIMA -WESTFORD	-7.3	6.3	26.3	3.16	9502316513.7	10.75	.00	
KASHIMA -WETTZELL	-24.2	5.1	26.2	2.87	8475826908.5	9.29	.09	
KAUAI -KWAJAL26	.4	2.5	14.9	2.19	3725196310.0	5.29	.75	
KAUAI -MOJAVE12	18.5	1.0	9.2	1.77	4303581291.5	1.64	.40	
KAUAI -VNDNBERG	-.1	1.8	14.6	4.25	3972522445.6	2.92	.37	
KWAJAL26-MOJAVE12	11.5	4.8	23.2	1.81	7576938625.7	10.75	.83	
KWAJAL26-VNDNBERG	-6.8	8.9	28.4	3.22	7298104546.2	18.58	.88	
MARPOINT-WESTFORD	.7	1.4	11.2	4.82	676178922.6	4.64	.41	
MOJAVE12-MON PEAK	-21.8	1.1	9.3	3.71	274055770.0	2.02	.54	
MOJAVE12-ONSALA60	7.0	2.7	20.5	2.95	8021117522.3	4.27	.20	
MOJAVE12-OVRO 130	2.1	.5	6.2	2.58	245276456.2	.97	.64	
MOJAVE12-PBLOSSOM	1.7	1.7	6.6	2.29	131184786.8	4.07	.79	
MOJAVE12-PINFLATS	-13.6	1.3	5.8	1.11	195109698.7	2.22	.77	
MOJAVE12-PLATTVIL	-1.2	1.0	6.8	1.71	1196316951.0	1.85	.46	
MOJAVE12-PRESIDIO	20.1	1.5	8.7	3.30	568654973.3	2.19	.00	
MOJAVE12-PT REYES	29.8	1.3	6.1	1.65	621424830.1	1.75	-.37	
MOJAVE12-PVERDES	-2.8	1.8	5.6	1.36	224483711.3	2.53	.11	
MOJAVE12-QUINCY	1.7	1.5	8.8	3.56	627137774.3	2.44	.01	
MOJAVE12-RICHMOND	4.8	2.4	9.0	1.69	3594693007.9	4.28	-.95	
MOJAVE12-SANPAULA	11.6	1.9	7.0	2.21	219618292.3	2.85	-.01	
MOJAVE12-VERNAL	-.4	2.5	5.6	2.00	848884616.9	2.83	-.19	
MOJAVE12-VNDNBERG	17.1	.3	5.9	2.92	351282525.7	.49	.03	
MOJAVE12-WESTFORD	.6	.6	9.6	2.91	3903767754.5	.87	-.36	
MOJAVE12-WETTZELL	8.4	1.8	19.5	2.58	8588976438.1	3.11	-.58	
MOJAVE12-YUMA	7.4	1.2	5.7	1.85	362912404.9	1.70	.64	
MON PEAK-OVRO 130	-25.2	1.4	10.0	3.13	510423682.7	3.67	.73	
MON PEAK-QUINCY	-27.7	3.3	16.8	6.08	883538161.4	6.00	.36	
MON PEAK-VNDNBERG	3.3	1.6	10.5	6.32	430216041.5	2.34	.40	
MON PEAK-YUMA	27.7	2.1	5.0	2.25	207727043.3	3.97	.86	
NOME -VNDNBERG	-57.5	12.6	20.7	1.36	4388694023.8	27.35	.94	
NRAO 140-OVRO 130	2.8	1.3	10.5	4.49	3324244219.2	6.79	.77	
NRAO 140-WESTFORD	-.3	.7	3.7	2.29	844148083.8	3.62	.81	
ONSALA60-OVRO 130	12.7	2.2	30.8	2.85	7914131049.3	10.38	.85	
ONSALA60-RICHMOND	9.5	2.3	21.3	1.50	7307152562.5	3.06	-.17	
ONSALA60-WESTFORD	13.4	.7	13.7	2.21	5600741523.5	1.27	.34	
ONSALA60-WETTZELL	-1.1	.3	4.4	1.86	919660997.3	.43	.10	
OVRO 130-PBLOSSOM	-7.7	1.9	5.5	.65	303497785.5	5.38	.89	
OVRO 130-PINFLATS	-14.8	4.0	8.1	1.50	434649314.1	8.13	.90	
OVRO 130-PLATTVIL	1.9	2.4	8.6	3.09	1220818764.4	4.26	.65	
OVRO 130-PRESIDIO	16.4	2.0	8.0	3.61	374258388.3	3.86	.53	
OVRO 130-PT REYES	23.7	1.9	6.6	1.75	421766840.5	3.73	.47	
OVRO 130-QUINCY	-1.2	1.6	9.8	4.08	382696343.9	3.99	.57	
OVRO 130-VNDNBERG	-8.9	.9	8.6	2.37	363980299.4	1.65	.62	
OVRO 130-WESTFORD	3.0	.8	10.2	2.12	3928579376.6	2.74	.70	
OVRO 130-WETTZELL	7.4	12.6	27.0	5.49	8500205021.7	24.28	.87	
OVRO 130-YUMA	3.5	2.3	4.2	.70	603989387.9	4.25	.89	
PBLOSSOM-VNDNBERG	16.2	1.6	5.9	1.58	247362549.5	3.54	.78	

TABLE 6.2 (continued)							
BASILINE	RATE	ERROR	WRMS	CHI	EPOCH	EPOCH	CORRE-
	mm/yr	mm/yr	mm	SQR	VALUE	ERROR	LATION
PINFLATS-VNDNBERG	17.1	1.4	5.5	.97	397781434.6	2.18	.77
PINFLATS-YUMA	24.3	6.7	8.6	3.86	222910532.4	10.53	.91
PLATTVIL-WESTFORD	6.0	3.4	11.6	2.94	2752862691.3	4.45	.18
PRESIDIO-VNDNBERG	-14.6	1.5	8.9	2.32	396580068.8	2.23	-.03
PT REYES-VNDNBERG	-3.2	1.2	6.3	1.34	445233366.1	1.75	-.28
PVERDES -VNDNBERG	5.7	2.1	6.6	2.06	223065181.5	2.98	.14
QUINCY -VNDNBERG	-30.1	1.6	7.3	1.94	601887723.9	2.25	-.20
RICHMOND-WESTFORD	.8	.3	8.0	1.43	2044501755.9	.41	.06
RICHMOND-WETTZELL	11.0	.7	20.8	1.38	7588398538.1	1.10	-.13
SANPAULA-VNDNBERG	2.1	1.4	5.1	1.19	149776487.7	2.07	-.06
SOURDOGH-VNDNBERG	-36.7	9.3	15.1	1.38	3527016937.4	19.25	.95
VNDNBERG-YUMA	38.3	1.8	7.4	2.72	620341861.7	2.31	.63
WESTFORD-WETTZELL	14.5	.4	12.6	1.55	5998325399.9	.58	-.07

TABLE 6.3
TRANSVERSE STATISTICAL SUMMARY

BASELINE	NUM OBS	SPAN yr to yr	MEAN			RATE OF CHANGE			
			ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
ALGOPARK-GILCREEK	4	84.6-85.7	8.7	15.1	2.27	-----	-----	-----	-----
ALGOPARK-HRAS 085	5	84.6-85.7	5.7	11.4	2.05	-----	-----	-----	-----
ALGOPARK-MOJAVE12	1	85.6-85.6	12.4	.0	.00	-----	-----	-----	-----
ALGOPARK-PENTICTN	3	84.6-85.7	6.5	9.2	1.59	-----	-----	-----	-----
ALGOPARK-WESTFORD	2	84.7-85.6	1.9	1.9	.51	-----	-----	-----	-----
ALGOPARK-YELLOWKN	2	84.6-85.7	3.1	3.1	.37	-----	-----	-----	-----
AUSTINTX-HRAS 085	1	87.5-87.5	4.0	.0	.00	-----	-----	-----	-----
AUSTINTX-RICHMOND	1	87.5-87.5	5.2	.0	.00	-----	-----	-----	-----
AUSTINTX-WESTFORD	1	87.5-87.5	6.0	.0	.00	-----	-----	-----	-----
BERMUDA -MARPOINT	3	87.6-87.6	13.5	19.1	6.73	-----	-----	-----	-----
BERMUDA -RICHMOND	4	87.6-87.6	3.0	5.2	.61	-----	-----	-----	-----
BERMUDA -WESTFORD	4	87.6-87.6	1.2	2.1	.23	-----	-----	-----	-----
BLKBUTTE-ELY	2	88.8-88.8	5.5	5.5	3.47	-----	-----	-----	-----
BLKBUTTE-HATCREEK	5	87.1-88.8	3.6	7.1	2.32	-----	-----	-----	-----
BLKBUTTE-HRAS 085	5	83.9-88.8	3.2	6.4	1.66	-.1	3.4	6.4	2.21
BLKBUTTE-MOJAVE12	12	83.9-88.8	1.6	5.5	2.02	4.0	.8	2.9	.63
BLKBUTTE-MON PEAK	4	83.9-86.8	7.1	12.3	8.16	-----	-----	-----	-----
BLKBUTTE-OCOTILLO	2	84.2-85.0	3.6	3.6	.32	-----	-----	-----	-----
BLKBUTTE-OVRO 130	3	86.4-87.8	8.3	11.7	11.71	-----	-----	-----	-----
BLKBUTTE-PRESIDIO	2	87.4-87.8	7.1	7.1	1.94	-----	-----	-----	-----
BLKBUTTE-PT REYES	1	87.1-87.1	6.4	.0	.00	-----	-----	-----	-----
BLKBUTTE-VNDNBERG	12	83.9-88.8	9.2	30.4	28.04	27.4	1.8	6.1	1.24
BLOOMIND-HRAS 085	1	87.6-87.6	11.6	.0	.00	-----	-----	-----	-----
BLOOMIND-WESTFORD	1	87.6-87.6	12.3	.0	.00	-----	-----	-----	-----
BREST -MOJAVE12	2	89.7-89.7	35.7	35.7	35.63	-----	-----	-----	-----
BREST -NOTO	4	89.7-89.7	1.4	2.4	.16	-----	-----	-----	-----
BREST -ONSALA60	1	89.7-89.7	5.5	.0	.00	-----	-----	-----	-----
BREST -RICHMOND	1	89.7-89.7	9.6	.0	.00	-----	-----	-----	-----
BREST -WESTFORD	2	89.7-89.7	25.7	25.7	25.30	-----	-----	-----	-----
BREST -WETTZELL	4	89.7-89.7	4.0	6.9	2.05	-----	-----	-----	-----
CARNUSTY-MOJAVE12	1	89.6-89.6	8.2	.0	.00	-----	-----	-----	-----
CARNUSTY-RICHMOND	1	89.6-89.6	7.9	.0	.00	-----	-----	-----	-----
CARNUSTY-WESTFORD	1	89.6-89.6	6.4	.0	.00	-----	-----	-----	-----
CARNUSTY-WETTZELL	4	89.6-89.6	5.1	8.9	2.11	-----	-----	-----	-----
CARROLGA-HRAS 085	1	87.5-87.5	9.5	.0	.00	-----	-----	-----	-----
CARROLGA-RICHMOND	1	87.5-87.5	9.4	.0	.00	-----	-----	-----	-----
CARROLGA-WESTFORD	1	87.5-87.5	8.4	.0	.00	-----	-----	-----	-----
CHLBOLTN-HAYSTACK	7	80.8-80.8	29.4	72.1	.05	-----	-----	-----	-----
CHLBOLTN-HRAS 085	7	80.8-80.8	44.6	109.3	.05	-----	-----	-----	-----
CHLBOLTN-ONSALA60	7	80.8-80.8	10.9	26.7	.13	-----	-----	-----	-----
CHLBOLTN-OVRO 130	6	80.8-80.8	58.6	131.0	.06	-----	-----	-----	-----

TABLE 6.3 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
DEADMANL-JPL MV1	1	88.1-88.1	8.5	.0	.00	-----	-----	-----	-----
DEADMANL-MOJAVE12	5	84.2-88.1	3.1	6.1	1.65	4.8	3.8	5.0	1.44
DEADMANL-SANPAULA	4	84.2-87.9	8.6	14.9	2.40	-----	-----	-----	-----
DEADMANL-VNDNBERG	5	84.2-88.1	13.7	27.5	7.61	30.0	6.6	9.8	1.29
DSS15 -GILCREEK	1	89.6-89.6	5.4	.0	.00	-----	-----	-----	-----
DSS15 -GOLDVENU	1	87.8-87.8	2.5	.0	.00	-----	-----	-----	-----
DSS15 -HAYSTACK	1	89.6-89.6	4.9	.0	.00	-----	-----	-----	-----
DSS15 -MOJ 7288	1	87.8-87.8	2.0	.0	.00	-----	-----	-----	-----
DSS15 -MOJAVE12	1	87.8-87.8	1.7	.0	.00	-----	-----	-----	-----
DSS15 -OVR 7853	1	87.8-87.8	2.9	.0	.00	-----	-----	-----	-----
DSS15 -OVRO 130	1	87.8-87.8	2.8	.0	.00	-----	-----	-----	-----
DSS15 -YAKATAGA	1	89.6-89.6	5.9	.0	.00	-----	-----	-----	-----
DSS45 -GILCREEK	8	88.5-90.0	2.6	6.8	.08	-----	-----	-----	-----
DSS45 -HOBART26	2	89.9-90.0	4.0	4.0	1.91	-----	-----	-----	-----
DSS45 -KASHIMA	8	88.5-90.0	9.5	25.1	2.29	-----	-----	-----	-----
DSS45 -KAUAI	9	88.4-90.0	13.0	36.9	4.41	-----	-----	-----	-----
DSS45 -KWAJAL26	3	88.5-88.6	7.4	10.4	1.00	-----	-----	-----	-----
DSS45 -MOJAVE12	1	88.4-88.4	22.6	.0	.00	-----	-----	-----	-----
DSS45 -SESHAN25	7	88.5-90.0	8.5	20.8	1.66	-----	-----	-----	-----
DSS65 -HRAS 085	1	88.8-88.8	10.2	.0	.00	-----	-----	-----	-----
DSS65 -MEDICINA	4	88.7-89.1	3.0	5.1	3.16	-----	-----	-----	-----
DSS65 -MOJAVE12	1	88.8-88.8	9.8	.0	.00	-----	-----	-----	-----
DSS65 -NOTO	1	89.4-89.4	6.8	.0	.00	-----	-----	-----	-----
DSS65 -ONSALA60	5	88.8-89.4	3.5	6.9	2.42	-----	-----	-----	-----
DSS65 -RICHMOND	3	88.7-89.0	14.5	20.5	4.42	-----	-----	-----	-----
DSS65 -WESTFORD	5	88.7-89.4	8.7	17.4	4.01	-----	-----	-----	-----
DSS65 -WETTZELL	5	88.7-89.4	1.7	3.3	.76	-----	-----	-----	-----
EFLSBERG-HAYSTACK	8	79.9-83.3	231.2	611.6	2.19	-8.4	292.4	611.6	2.56
EFLSBERG-HRAS 085	6	80.6-83.3	210.2	470.0	.75	-494.6	89.3	159.7	.11
EFLSBERG-NRAO 140	1	79.9-79.9	454.8	.0	.00	-----	-----	-----	-----
EFLSBERG-ONSALA60	6	80.6-83.3	11.3	25.3	.18	-47.1	11.2	10.9	.04
EFLSBERG-OVRO 130	6	79.9-80.7	414.6	927.2	2.97	-----	-----	-----	-----
EFLSBERG-ROBLED32	1	83.3-83.3	265.1	.0	.00	-----	-----	-----	-----
EFLSBERG-WESTFORD	1	83.3-83.3	731.2	.0	.00	-----	-----	-----	-----
ELY -HATCREEK	9	85.3-89.3	4.3	12.0	3.88	1.6	3.0	11.8	4.27
ELY -HRAS 085	10	84.3-89.3	4.1	12.4	4.25	-6.7	1.3	6.0	1.14
ELY -MOJAVE12	10	84.3-89.3	1.5	4.4	1.29	1.8	.8	3.6	.93
ELY -OVRO 130	1	86.3-86.3	5.6	.0	.00	-----	-----	-----	-----
ELY -PLATTVIL	3	84.3-86.3	2.1	3.0	.13	-----	-----	-----	-----
ELY -VNDNBERG	5	87.4-88.8	11.1	22.3	21.21	-----	-----	-----	-----
ELY -WESTFORD	2	89.3-89.3	7.8	7.8	1.00	-----	-----	-----	-----
ELY -YUMA	3	87.4-88.3	3.0	4.3	.73	-----	-----	-----	-----
FLAGSTAF-HATCREEK	6	84.3-88.8	3.7	8.3	2.03	5.2	1.9	4.9	.86
FLAGSTAF-HRAS 085	6	84.3-88.8	5.2	11.7	4.34	1.4	4.5	11.5	5.30
FLAGSTAF-MOJAVE12	6	84.3-88.8	5.7	12.8	5.33	9.2	2.1	5.3	1.14
FLAGSTAF-PLATTVIL	4	84.3-88.8	1.5	2.7	.22	-----	-----	-----	-----
FLAGSTAF-VERNAL	2	87.3-88.3	7.4	7.4	3.80	-----	-----	-----	-----
FORT ORD-GILCREEK	4	88.1-88.1	6.4	11.2	2.33	-----	-----	-----	-----
FORT ORD-HATCREEK	10	84.1-88.1	11.1	33.2	61.86	24.3	3.1	11.2	7.88
FORT ORD-HRAS 085	4	85.2-87.8	17.1	29.7	19.07	-----	-----	-----	-----

TABLE 6.3 (continued)									
BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
FORT ORD-JPL MV1	1	87.8-87.8	6.0	.0	.00	-----	-----	-----	-----
FORT ORD-MOJAVE12	11	83.7-88.1	8.9	28.2	26.08	21.4	1.3	4.9	.89
FORT ORD-MON PEAK	1	87.1-87.1	5.4	.0	.00	-----	-----	-----	-----
FORT ORD-OVRO 130	5	83.7-87.8	20.6	41.3	35.13	32.4	8.2	16.6	7.55
FORT ORD-PRESIDIO	4	83.7-88.1	4.7	8.1	3.22	-----	-----	-----	-----
FORT ORD-PT REYES	3	87.4-88.1	4.1	5.7	1.50	-----	-----	-----	-----
FORT ORD-VNDNBERG	11	83.7-88.1	2.0	6.4	1.95	2.5	1.5	5.6	1.64
FORTORDS-GILCREEK	13	88.9-89.9	5.9	20.3	5.36	-----	-----	-----	-----
FORTORDS-HATCREEK	14	88.9-89.9	2.4	8.5	4.93	-----	-----	-----	-----
FORTORDS-HAYSTACK	10	89.8-89.9	1.9	5.6	.29	-----	-----	-----	-----
FORTORDS-MOJAVE12	15	88.9-89.9	8.4	31.4	35.95	-----	-----	-----	-----
FORTORDS-OVRO 130	2	88.9-88.9	1.7	1.7	.14	-----	-----	-----	-----
FORTORDS-PRESIDIO	3	89.8-89.9	2.0	2.9	.32	-----	-----	-----	-----
FORTORDS-PT REYES	5	88.9-89.9	7.9	15.8	9.13	-----	-----	-----	-----
FORTORDS-QUINCY	2	89.8-89.8	3.3	3.3	.48	-----	-----	-----	-----
FORTORDS-VNDNBERG	15	88.9-89.9	4.3	16.0	13.10	-----	-----	-----	-----
FORTORDS-WESTFORD	9	89.8-89.9	1.9	5.5	.28	-----	-----	-----	-----
FTD 7900-HRAS 085	1	88.8-88.8	2.5	.0	.00	-----	-----	-----	-----
FTD 7900-MOJAVE12	1	88.8-88.8	3.9	.0	.00	-----	-----	-----	-----
FTD 7900-PIETOWN	1	88.8-88.8	2.7	.0	.00	-----	-----	-----	-----
FTD 7900-WESTFORD	1	88.8-88.8	7.2	.0	.00	-----	-----	-----	-----
GILCREEK-GOLDVENU	1	88.5-88.5	14.3	.0	.00	-----	-----	-----	-----
GILCREEK-HALEAKAL	3	88.5-88.5	7.7	10.9	1.07	-----	-----	-----	-----
GILCREEK-HATCREEK	47	85.4-89.9	2.4	16.1	4.01	-3.0	1.8	15.6	3.86
GILCREEK-HAYSTACK	78	84.7-89.9	3.1	27.3	7.85	-14.2	1.8	20.4	4.46
GILCREEK-HOBART26	4	89.7-90.0	6.4	11.1	.24	-----	-----	-----	-----
GILCREEK-HRAS 085	54	84.6-89.5	3.5	25.7	6.88	-18.7	2.3	16.9	3.02
GILCREEK-KASHIMA	100	84.6-90.0	2.6	26.3	3.50	12.4	1.6	20.8	2.20
GILCREEK-KAUAI	69	84.5-90.0	10.6	87.1	43.16	61.4	1.6	18.7	2.02
GILCREEK-KODIAK	12	84.6-89.5	3.1	10.4	6.43	7.6	1.5	5.5	1.95
GILCREEK-KWAJAL26	20	84.5-88.6	31.0	135.0	42.23	92.6	4.0	24.3	1.44
GILCREEK-MOJAVE12	134	84.5-90.0	1.7	19.5	4.89	-9.4	1.0	15.2	2.98
GILCREEK-NOBEY 6M	1	89.9-89.9	16.9	.0	.00	-----	-----	-----	-----
GILCREEK-NOME	7	84.5-86.6	3.1	7.6	1.90	2.7	4.0	7.3	2.08
GILCREEK-ONSALA60	7	85.5-88.9	8.7	21.4	1.77	-11.7	7.8	17.8	1.47
GILCREEK-OVRO 130	11	85.4-88.9	4.7	14.9	3.95	-6.3	4.0	13.2	3.45
GILCREEK-PENTICTN	2	84.6-85.7	3.7	3.7	.54	-----	-----	-----	-----
GILCREEK-PLATTVIL	8	85.4-89.3	11.7	31.0	11.91	-16.1	6.1	21.1	6.43
GILCREEK-PRESIDIO	6	88.1-89.9	5.4	12.1	2.64	-----	-----	-----	-----
GILCREEK-PT REYES	8	88.1-89.9	5.9	15.7	4.27	-----	-----	-----	-----
GILCREEK-QUINCY	2	89.8-89.8	8.1	8.1	1.28	-----	-----	-----	-----
GILCREEK-RICHMOND	23	87.3-89.8	5.0	23.5	3.02	-17.1	5.1	18.9	2.07
GILCREEK-SESHAN25	9	88.3-90.0	9.1	25.7	2.50	-----	-----	-----	-----
GILCREEK-SHANGHAI	1	86.5-86.5	50.7	.0	.00	-----	-----	-----	-----
GILCREEK-SNDPOINT	10	84.5-89.5	2.7	8.0	2.12	3.6	1.8	6.5	1.61
GILCREEK-SOURDOGH	16	84.6-89.6	2.2	8.5	8.07	-.4	1.4	8.5	8.61
GILCREEK-VNDNBERG	65	84.5-89.9	2.3	18.6	3.61	6.7	1.3	15.6	2.56
GILCREEK-WESTFORD	73	84.7-89.9	3.3	27.7	7.65	-16.0	2.1	20.3	4.19
GILCREEK-WETTZELL	11	84.7-89.9	8.5	26.8	6.01	-13.1	6.8	22.5	4.72
GILCREEK-WHTHORSE	9	84.6-89.6	3.2	9.1	4.94	1.4	2.9	9.0	5.47

TABLE 6.3 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
GILCREEK-YAKATAGA	13	84.6-89.6	11.2	38.7	114.08	24.0	4.4	19.9	33.03
GILCREEK-YELLOWKN	2	84.6-85.7	4.1	4.1	.86	-----	-----	-----	-----
GOLDVENU-HAYSTACK	5	81.9-88.5	18.9	37.7	2.61	-1.3	7.5	37.6	3.45
GOLDVENU-HRAS 085	3	81.9-82.8	8.2	11.5	.06	-----	-----	-----	-----
GOLDVENU-MOJ 7288	1	87.8-87.8	2.3	.0	.00	-----	-----	-----	-----
GOLDVENU-MOJAVE12	5	83.7-88.5	1.4	2.8	1.63	.7	.8	2.5	1.74
GOLDVENU-NRAO 140	1	81.9-81.9	80.0	.0	.00	-----	-----	-----	-----
GOLDVENU-ONSALA60	3	81.9-82.5	72.3	102.3	.06	-----	-----	-----	-----
GOLDVENU-OVR 7853	1	87.8-87.8	2.1	.0	.00	-----	-----	-----	-----
GOLDVENU-OVRO 130	6	81.9-87.8	1.4	3.2	.45	-1.2	.8	2.6	.37
GOLDVENU-PRESIDIO	1	83.7-83.7	26.2	.0	.00	-----	-----	-----	-----
GOLDVENU-PT REYES	1	83.7-83.7	27.6	.0	.00	-----	-----	-----	-----
GOLDVENU-QUINCY	1	82.8-82.8	23.8	.0	.00	-----	-----	-----	-----
GOLDVENU-VNDNBERG	1	83.7-83.7	17.6	.0	.00	-----	-----	-----	-----
GOLDVENU-WESTFORD	4	81.9-88.5	20.6	35.6	2.88	-----	-----	-----	-----
GORF7102-HRAS 085	1	89.4-89.4	10.5	.0	.00	-----	-----	-----	-----
GORF7102-MARPOINT	2	89.4-89.4	12.1	12.1	17.32	-----	-----	-----	-----
GORF7102-MOJAVE12	2	89.8-89.8	7.9	7.9	.64	-----	-----	-----	-----
GORF7102-NRAO85 3	2	89.4-89.4	9.2	9.2	6.40	-----	-----	-----	-----
GORF7102-RICHMOND	4	89.4-89.8	6.0	10.5	3.16	-----	-----	-----	-----
GORF7102-WESTFORD	4	89.4-89.8	5.9	10.2	5.59	-----	-----	-----	-----
GRASSE -MOJAVE12	1	89.7-89.7	9.0	.0	.00	-----	-----	-----	-----
GRASSE -NOTO	2	89.7-89.7	1.8	1.8	.33	-----	-----	-----	-----
GRASSE -RICHMOND	1	89.7-89.7	10.9	.0	.00	-----	-----	-----	-----
GRASSE -WESTFORD	1	89.7-89.7	8.8	.0	.00	-----	-----	-----	-----
GRASSE -WETTZELL	4	89.7-89.7	2.8	4.8	2.69	-----	-----	-----	-----
HALEAKAL-KAUAI	3	88.5-88.5	8.6	12.2	7.75	-----	-----	-----	-----
HALEAKAL-MOJAVE12	3	88.5-88.5	10.4	14.8	2.01	-----	-----	-----	-----
HARTRAO -HRAS 085	6	87.1-89.2	15.5	34.6	2.44	-41.4	8.5	13.1	.44
HARTRAO -MEDICINA	3	88.0-89.1	10.1	14.3	.75	-----	-----	-----	-----
HARTRAO -MOJAVE12	1	90.0-90.0	47.6	.0	.00	-----	-----	-----	-----
HARTRAO -ONSALA60	5	86.0-88.0	4.6	9.3	.19	-----	-----	-----	-----
HARTRAO -RICHMOND	18	86.0-90.0	7.6	31.3	1.24	-2.2	7.6	31.2	1.31
HARTRAO -WESTFORD	23	86.0-89.2	5.1	24.1	1.03	-8.3	4.2	22.1	.91
HARTRAO -WETTZELL	16	86.0-90.0	7.0	27.2	2.37	12.3	5.4	23.2	1.85
HATCREEK-HAYSTACK	26	83.4-89.9	2.7	13.6	1.82	-2.7	1.7	13.0	1.72
HATCREEK-HRAS 085	62	83.4-89.4	1.6	12.7	3.39	-3.7	.9	11.1	2.66
HATCREEK-JPL MV1	2	83.5-87.8	15.7	15.7	8.50	-----	-----	-----	-----
HATCREEK-KASHIMA	15	84.1-89.8	8.0	30.1	2.33	9.1	6.3	27.9	2.17
HATCREEK-KAUAI	15	85.4-89.8	21.4	80.0	56.98	70.8	3.8	15.2	2.23
HATCREEK-KODIAK	2	87.5-87.5	2.4	2.4	.12	-----	-----	-----	-----
HATCREEK-MAMMOTHL	1	83.5-83.5	12.6	.0	.00	-----	-----	-----	-----
HATCREEK-MOJAVE12	111	83.5-89.9	.9	9.9	6.03	-4.4	.4	7.0	3.05
HATCREEK-MON PEAK	20	83.5-89.4	5.0	21.8	19.72	12.3	1.5	10.2	4.54
HATCREEK-OVRO 130	32	83.4-88.9	1.6	8.6	4.04	-3.2	.8	7.1	2.83
HATCREEK-PLATTVIL	20	83.4-89.3	2.4	10.3	2.21	3.3	1.3	8.9	1.71
HATCREEK-PRESIDIO	12	85.8-89.9	6.9	22.8	38.25	14.1	1.7	8.0	5.23
HATCREEK-PT REYES	14	84.2-89.9	10.0	36.2	70.81	26.2	1.0	4.9	1.39
HATCREEK-PVERDES	2	89.1-89.1	2.3	2.3	.41	-----	-----	-----	-----
HATCREEK-QUINCY	12	83.5-89.8	2.2	7.2	3.62	1.8	1.1	6.4	3.19

TABLE 6.3 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
HATCREEK-SANPAULA	2	89.1-89.1	1.3	1.3	.17	-----	-----	-----	-----
HATCREEK-SNDPOINT	1	87.6-87.6	84.1	.0	.00	-----	-----	-----	-----
HATCREEK-VERNAL	6	86.2-89.3	3.9	8.6	2.06	-6.3	1.5	3.7	.48
HATCREEK-VNDNBERG	79	84.1-89.9	3.0	26.3	46.53	18.7	.7	8.1	4.48
HATCREEK-WESTFORD	24	83.4-89.9	2.9	13.9	1.91	-3.5	2.0	13.0	1.75
HATCREEK-YAKATAGA	3	87.6-87.6	5.8	8.2	.86	-----	-----	-----	-----
HATCREEK-YUMA	12	85.2-88.8	2.4	8.1	2.15	-2.1	2.5	7.8	2.20
HAYSTACK-HRAS 085	622	80.3-89.5	.8	19.3	8.18	-8.6	.2	9.8	2.13
HAYSTACK-KASHIMA	10	84.7-89.9	8.7	26.2	6.09	6.6	11.9	25.8	6.60
HAYSTACK-KODIAK	6	88.5-89.5	4.6	10.4	1.15	-----	-----	-----	-----
HAYSTACK-MARPOINT	11	82.5-89.4	4.0	12.7	3.53	2.4	2.9	12.2	3.65
HAYSTACK-MOJAVE12	151	83.5-90.0	1.0	12.4	3.39	-.5	.7	12.4	3.41
HAYSTACK-NRAO 140	10	79.6-88.8	2.1	6.3	.32	-1.0	1.1	6.0	.33
HAYSTACK-ONSALA60	170	80.6-89.9	1.5	19.0	5.29	-4.9	.9	17.5	4.49
HAYSTACK-OVRO 130	57	79.6-88.8	3.9	29.0	4.45	1.2	2.6	28.9	4.51
HAYSTACK-PLATTVIL	10	83.4-89.3	6.7	20.0	5.75	-8.9	3.0	13.9	3.11
HAYSTACK-PRESIDIO	5	89.8-89.9	4.2	8.5	.75	-----	-----	-----	-----
HAYSTACK-ROBLED32	2	83.3-83.3	15.2	15.2	.00	-----	-----	-----	-----
HAYSTACK-VNDNBERG	11	89.8-89.9	2.5	7.8	.69	-----	-----	-----	-----
HAYSTACK-WESTFORD	12	81.4-89.8	1.3	4.2	2.45	.4	.6	4.1	2.55
HAYSTACK-WETTZELL	491	83.9-90.0	.8	18.8	7.80	-9.9	.3	11.2	2.77
HAYSTACK-YAKATAGA	5	88.6-89.6	5.6	11.3	1.83	-----	-----	-----	-----
HOBART26-KASHIMA	4	89.7-90.0	6.1	10.5	.48	-----	-----	-----	-----
HOBART26-KAUAI	3	89.7-90.0	3.8	5.4	.09	-----	-----	-----	-----
HOBART26-MOJAVE12	1	90.0-90.0	22.1	.0	.00	-----	-----	-----	-----
HOBART26-SESHAN25	1	90.0-90.0	12.0	.0	.00	-----	-----	-----	-----
HOHENFRG-MOJAVE12	2	89.5-89.5	4.9	4.9	.60	-----	-----	-----	-----
HOHENFRG-NOTO	5	89.5-89.5	3.6	7.2	2.39	-----	-----	-----	-----
HOHENFRG-RICHMOND	2	89.5-89.5	8.0	8.0	1.65	-----	-----	-----	-----
HOHENFRG-WESTFORD	2	89.5-89.5	.6	.6	.01	-----	-----	-----	-----
HOHENFRG-WETTZELL	5	89.5-89.5	2.5	5.0	3.79	-----	-----	-----	-----
HRAS 085-JPL MV1	3	82.8-87.8	5.6	8.0	.58	-----	-----	-----	-----
HRAS 085-KASHIMA	26	87.3-89.5	5.6	28.1	1.81	-14.8	8.6	26.6	1.68
HRAS 085-KODIAK	1	89.5-89.5	7.8	.0	.00	-----	-----	-----	-----
HRAS 085-LEONRDOK	1	87.6-87.6	5.7	.0	.00	-----	-----	-----	-----
HRAS 085-MAMMOTHL	1	83.5-83.5	39.5	.0	.00	-----	-----	-----	-----
HRAS 085-MARPOINT	3	82.8-89.4	12.3	17.3	1.89	-----	-----	-----	-----
HRAS 085-MCD 7850	1	88.8-88.8	2.1	.0	.00	-----	-----	-----	-----
HRAS 085-MEDICINA	12	87.3-89.1	5.2	17.2	4.73	-----	-----	-----	-----
HRAS 085-MILES MON	1	88.3-88.3	7.7	.0	.00	-----	-----	-----	-----
HRAS 085-MOJAVE12	123	83.5-89.4	.8	9.4	3.48	3.3	.5	8.2	2.70
HRAS 085-MON PEAK	33	82.8-89.4	4.6	26.3	16.42	17.1	1.4	10.7	2.82
HRAS 085-NRAO 140	6	80.3-88.8	13.3	29.8	2.97	-10.9	.7	3.9	.06
HRAS 085-NRAO85 3	1	89.4-89.4	9.4	.0	.00	-----	-----	-----	-----
HRAS 085-ONSALA60	108	80.6-89.4	3.1	31.7	8.38	-13.8	1.5	23.6	4.71
HRAS 085-OVRO 130	73	80.3-88.8	1.5	13.0	2.84	2.0	1.2	12.8	2.77
HRAS 085-PENTICTN	3	84.6-85.7	7.4	10.4	2.58	-----	-----	-----	-----
HRAS 085-PIETOWN	3	88.7-88.8	1.5	2.1	1.23	-----	-----	-----	-----
HRAS 085-PINFLATS	5	85.8-87.0	3.9	7.9	1.73	-----	-----	-----	-----
HRAS 085-PLATTVIL	20	83.4-89.3	2.7	11.8	6.45	-4.0	1.5	9.9	4.75

TABLE 6.3 (continued)									
BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
HRAS 085-PRESIDIO	4	85.2-87.1	4.7	8.2	1.83	-----	-----	-----	-----
HRAS 085-PT REYES	2	85.2-85.8	1.4	1.4	.07	-----	-----	-----	-----
HRAS 085-QUINCY	14	82.8-89.3	3.7	13.2	3.36	-4.2	2.0	11.3	2.65
HRAS 085-RICHMOND	342	84.0-89.5	.7	12.2	3.17	-6.2	.3	7.9	1.32
HRAS 085-ROBLED32	1	83.3-83.3	701.2	.0	.00	-----	-----	-----	-----
HRAS 085-VERNAL	6	86.2-89.3	3.6	7.9	2.53	-3.1	2.8	7.0	2.43
HRAS 085-VNDNBERG	44	83.9-89.4	5.9	39.0	38.07	27.1	1.1	9.6	2.38
HRAS 085-WESTFORD	586	81.4-89.5	.8	18.9	8.28	-8.6	.2	9.3	2.01
HRAS 085-WETTZELL	404	83.9-89.5	1.7	33.3	15.45	-19.5	.6	17.3	4.14
HRAS 085-YELLOWKN	2	84.6-85.7	6.1	6.1	1.08	-----	-----	-----	-----
HRAS 085-YUMA	18	83.8-88.8	1.9	8.0	2.08	-.3	2.1	8.0	2.21
JPL MV1 -MAMMOTHL	4	83.5-86.8	5.8	10.1	3.59	-----	-----	-----	-----
JPL MV1 -MOJAVE12	21	83.5-88.8	7.9	35.5	49.53	25.2	1.0	6.1	1.55
JPL MV1 -MON PEAK	1	82.8-82.8	16.5	.0	.00	-----	-----	-----	-----
JPL MV1 -OVRO 130	19	82.8-88.8	6.7	28.4	28.44	19.0	1.2	7.3	1.98
JPL MV1 -PBLOSSOM	7	83.1-88.0	6.2	15.1	5.05	8.4	3.3	10.0	2.66
JPL MV1 -PINFLATS	6	83.8-87.0	2.6	5.7	.90	5.1	3.1	4.4	.67
JPL MV1 -PRESIDIO	2	88.8-88.8	6.8	6.8	2.87	-----	-----	-----	-----
JPL MV1 -QUINCY	1	82.8-82.8	40.6	.0	.00	-----	-----	-----	-----
JPL MV1 -VNDNBERG	18	83.6-88.8	4.5	18.5	8.66	13.7	1.8	8.5	1.93
KASHIMA -KAUAI	60	84.6-90.0	3.5	26.9	2.49	-12.0	2.0	21.2	1.58
KASHIMA -KWAJAL26	16	84.6-88.6	13.7	52.9	14.44	35.6	3.6	18.5	1.90
KASHIMA -MOJAVE12	46	84.1-90.0	5.0	33.7	4.75	-4.2	3.9	33.2	4.74
KASHIMA -NOBEY 6M	1	89.9-89.9	11.2	.0	.00	-----	-----	-----	-----
KASHIMA -ONSALA60	6	85.5-88.9	14.0	31.2	1.81	1.6	15.3	31.2	2.25
KASHIMA -RICHMOND	24	87.3-89.8	7.0	33.8	2.12	-12.2	8.7	32.3	2.04
KASHIMA -SESHAN25	9	88.3-90.0	3.5	10.0	2.42	-----	-----	-----	-----
KASHIMA -SHANGHAI	1	86.5-86.5	24.3	.0	.00	-----	-----	-----	-----
KASHIMA -VNDNBERG	26	85.4-89.8	6.1	30.5	1.97	-6.4	4.5	29.3	1.90
KASHIMA -WESTFORD	8	85.5-89.9	6.4	16.9	3.17	-7.4	9.7	16.2	3.37
KASHIMA -WETTZELL	10	84.7-89.9	4.6	13.9	1.91	5.7	6.6	13.3	1.97
KASHIMA -WHTHORSE	1	89.6-89.6	12.9	.0	.00	-----	-----	-----	-----
KAUAI -KWAJAL26	20	84.5-88.6	4.5	19.5	1.87	6.2	2.9	17.3	1.57
KAUAI -MOJAVE12	39	84.5-89.7	14.0	86.3	48.74	61.1	1.7	14.8	1.47
KAUAI -SESHAN25	9	88.3-90.0	9.2	26.1	2.11	-----	-----	-----	-----
KAUAI -SHANGHAI	1	86.5-86.5	28.8	.0	.00	-----	-----	-----	-----
KAUAI -VNDNBERG	31	84.5-89.8	8.4	46.1	14.30	31.4	2.0	15.2	1.61
KAUAI -WHTHORSE	1	89.6-89.6	10.0	.0	.00	-----	-----	-----	-----
KODIAK -MOJAVE12	7	87.5-89.5	4.3	10.5	1.39	-----	-----	-----	-----
KODIAK -NOME	4	84.6-86.6	2.7	4.6	.45	-----	-----	-----	-----
KODIAK -VNDNBERG	4	84.6-86.6	12.4	21.5	3.61	-----	-----	-----	-----
KODIAK -WESTFORD	5	88.5-89.5	6.1	12.3	1.30	-----	-----	-----	-----
KWAJAL26-MOJAVE12	17	84.5-88.6	20.9	83.5	11.52	64.6	5.0	24.2	1.03
KWAJAL26-SESHAN25	3	88.5-88.6	3.3	4.7	.15	-----	-----	-----	-----
KWAJAL26-VNDNBERG	12	84.5-88.6	11.1	36.8	2.61	29.3	10.7	27.8	1.64
LEONRDOK-RICHMOND	1	87.6-87.6	7.9	.0	.00	-----	-----	-----	-----
LEONRDOK-WESTFORD	1	87.6-87.6	9.2	.0	.00	-----	-----	-----	-----
MAMMOTHL-MOJAVE12	4	83.5-86.8	6.9	12.0	7.81	-----	-----	-----	-----
MAMMOTHL-OVRO 130	4	83.5-86.8	3.4	5.9	1.40	-----	-----	-----	-----
MAMMOTHL-VNDNBERG	2	84.8-86.8	16.6	16.6	39.24	-----	-----	-----	-----

TABLE 6.3 (continued)									
BASELINE	NUM	SPAN	ERROR	WRMS	CHI	RATE	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	SQR	mm/yr	mm/yr	mm	SQR
MARPOINT-NRAO85	3	2	89.4-89.4	5.9	5.9	3.98	-----	-----	-----
MARPOINT-ONSALA60	4	4	82.5-83.7	53.3	92.2	.03	-----	-----	-----
MARPOINT-OVRO	130	3	82.5-82.8	38.1	53.8	1.02	-----	-----	-----
MARPOINT-RICHMOND	5	5	87.6-89.4	5.8	11.7	5.08	-----	-----	-----
MARPOINT-WESTFORD	9	9	82.5-89.4	4.5	12.7	4.40	3.2	3.6	12.0
MCD 7850-MOJAVE12	1	1	88.8-88.8	5.4	.0	.00	-----	-----	-----
MCD 7850-PIETOWN	1	1	88.8-88.8	2.7	.0	.00	-----	-----	-----
MCD 7850-WESTFORD	1	1	88.8-88.8	12.3	.0	.00	-----	-----	-----
MEDICINA-ONSALA60	7	7	87.3-89.1	2.0	5.0	1.70	-----	-----	-----
MEDICINA-RICHMOND	13	13	87.3-89.0	5.5	19.0	4.34	-----	-----	-----
MEDICINA-WESTFORD	19	19	87.3-89.1	4.0	16.8	5.10	-----	-----	-----
MEDICINA-WETTZELL	15	15	87.3-89.1	.8	3.1	.78	-----	-----	-----
METSHOVI-MOJAVE12	1	1	89.5-89.5	9.6	.0	.00	-----	-----	-----
METSHOVI-ONSALA60	4	4	89.5-89.5	5.0	8.6	3.51	-----	-----	-----
METSHOVI-RICHMOND	1	1	89.5-89.5	9.3	.0	.00	-----	-----	-----
METSHOVI-WESTFORD	1	1	89.5-89.5	8.4	.0	.00	-----	-----	-----
METSHOVI-WETTZELL	4	4	89.5-89.5	7.1	12.3	5.46	-----	-----	-----
MILESMON-MOJAVE12	1	1	88.3-88.3	7.9	.0	.00	-----	-----	-----
MILESMON-WESTFORD	1	1	88.3-88.3	12.8	.0	.00	-----	-----	-----
MOJ 7288-MOJAVE12	1	1	87.8-87.8	2.3	.0	.00	-----	-----	-----
MOJ 7288-OVR 7853	1	1	87.8-87.8	2.4	.0	.00	-----	-----	-----
MOJ 7288-OVRO 130	1	1	87.8-87.8	2.3	.0	.00	-----	-----	-----
MOJAVE12-MON PEAK	32	32	83.5-89.4	6.3	35.0	121.32	24.4	1.0	7.6
MOJAVE12-NOBEY 6M	1	1	89.9-89.9	20.6	.0	.00	-----	-----	-----
MOJAVE12-NOTO	4	4	89.5-89.7	15.2	26.3	10.69	-----	-----	-----
MOJAVE12-NRAO 140	1	1	88.8-88.8	12.1	.0	.00	-----	-----	-----
MOJAVE12-OCOTILLO	3	3	84.2-85.2	5.7	8.0	4.29	-----	-----	-----
MOJAVE12-ONSALA60	26	26	83.8-89.9	8.0	39.9	14.03	-5.4	4.9	38.9
MOJAVE12-OVR 7853	1	1	87.8-87.8	1.9	.0	.00	-----	-----	-----
MOJAVE12-OVRO 130	72	72	83.5-88.9	.8	6.6	3.32	-1.7	.5	6.2
MOJAVE12-PBLOSSOM	9	9	83.6-88.1	8.0	22.6	28.37	17.0	.8	2.8
MOJAVE12-PIETOWN	3	3	88.7-88.8	.1	.1	.00	-----	-----	-----
MOJAVE12-PINFLATS	19	19	83.8-88.4	2.6	11.1	9.89	11.3	1.1	4.2
MOJAVE12-PLATTVIL	19	19	84.3-89.3	3.3	13.9	5.78	6.6	1.3	8.7
MOJAVE12-PRESIDIO	18	18	83.7-89.9	3.1	12.7	6.01	7.5	1.2	6.8
MOJAVE12-PT REYES	16	16	83.7-89.9	5.1	19.6	14.00	13.5	1.1	5.7
MOJAVE12-PVERDES	7	7	83.9-89.1	18.0	44.0	92.17	30.4	1.4	4.4
MOJAVE12-QUINCY	15	15	83.5-89.8	3.2	11.9	8.28	-6.4	1.1	6.1
MOJAVE12-RICHMOND	45	45	84.0-90.0	1.1	7.4	1.31	-3.5	1.4	6.9
MOJAVE12-SANPAULA	8	8	83.7-89.1	13.1	34.7	36.66	24.9	1.9	6.4
MOJAVE12-SEATTLE1	1	1	86.7-86.7	5.7	.0	.00	-----	-----	-----
MOJAVE12-SNDPOINT	7	7	87.6-89.5	4.2	10.2	.87	-----	-----	-----
MOJAVE12-SOURDOGH	8	8	87.6-89.6	5.6	14.7	2.55	-----	-----	-----
MOJAVE12-TROMSONO	1	1	89.6-89.6	8.1	.0	.00	-----	-----	-----
MOJAVE12-VERNAL	6	6	86.2-89.3	4.1	9.1	4.28	6.6	2.1	4.8
MOJAVE12-VNDNBERG	149	149	83.6-89.9	4.2	51.0	161.24	34.0	.3	6.1
MOJAVE12-WESTFORD	144	144	83.5-90.0	1.0	11.4	2.92	-1.5	.7	11.2
MOJAVE12-WETTZELL	62	62	84.7-90.0	4.1	31.7	13.55	-10.9	2.8	28.2
MOJAVE12-WHTHORSE	5	5	88.6-89.6	4.4	8.7	1.86	-----	-----	-----
MOJAVE12-YAKATAGA	7	7	87.6-89.6	12.4	30.4	11.98	-----	-----	-----

TABLE 6.3 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR	RATE mm/yr	ERROR mm/yr	WRMS mm	CHI SQR
MOJAVE12-YUMA	21	83.8-88.8	1.0	4.6	1.43	1.0	1.0	4.5	1.44
MON PEAK-OVRO 130	18	82.8-88.8	6.6	27.3	37.47	18.6	1.5	8.4	3.77
MON PEAK-QUINCY	11	83.5-88.8	6.2	19.7	14.32	11.0	2.2	10.0	4.12
MON PEAK-VNDNBERG	26	83.9-89.4	3.9	19.6	15.84	12.9	1.2	8.3	2.94
MON PEAK-YUMA	8	83.8-87.9	7.9	20.8	14.78	24.3	3.4	6.7	1.81
NOME -SNDPOINT	3	84.5-86.6	4.3	6.1	1.19	-----	-----	-----	-----
NOME -VNDNBERG	7	84.5-86.6	8.3	20.3	2.05	8.0	14.7	19.7	2.32
NOTO -ONSALA60	2	89.4-89.7	1.4	1.4	.11	-----	-----	-----	-----
NOTO -RICHMOND	3	89.5-89.7	8.7	12.3	1.94	-----	-----	-----	-----
NOTO -WESTFORD	5	89.4-89.7	7.8	15.6	3.25	-----	-----	-----	-----
NOTO -WETTZELL	12	89.4-89.7	1.3	4.3	1.08	-----	-----	-----	-----
NRAO 140-ONSALA60	4	81.9-83.0	85.3	147.8	.06	-----	-----	-----	-----
NRAO 140-OVRO 130	8	79.6-88.8	8.3	22.0	.50	-6.1	3.8	18.4	.41
NRAO 140-WESTFORD	5	81.9-88.8	2.1	4.1	.30	-2.5	.9	2.1	.10
NRAO85 3-RICHMOND	2	89.4-89.4	3.0	3.0	.73	-----	-----	-----	-----
NRAO85 3-WESTFORD	2	89.4-89.4	1.8	1.8	.31	-----	-----	-----	-----
OCOTILLO-OVRO 130	1	85.2-85.2	4.4	.0	.00	-----	-----	-----	-----
OCOTILLO-PVERDES	1	85.2-85.2	6.2	.0	.00	-----	-----	-----	-----
OCOTILLO-VNDNBERG	3	84.2-85.2	9.1	12.8	4.98	-----	-----	-----	-----
ONSALA60-OVRO 130	33	80.6-87.8	12.5	70.9	8.99	2.3	13.5	70.8	9.27
ONSALA60-RICHMOND	52	84.1-89.9	2.7	19.2	6.12	-9.9	1.3	12.9	2.80
ONSALA60-ROBLED32	1	83.3-83.3	402.5	.0	.00	-----	-----	-----	-----
ONSALA60-TROMSONO	4	89.6-89.6	2.5	4.3	.90	-----	-----	-----	-----
ONSALA60-WESTFORD	132	81.4-89.9	1.4	15.8	4.46	-5.2	.8	13.7	3.38
ONSALA60-WETTZELL	110	83.9-89.9	.7	6.8	2.77	-2.4	.4	5.9	2.09
OVR 7853-OVRO 130	1	87.8-87.8	2.4	.0	.00	-----	-----	-----	-----
OVRO 130-PBLOSSOM	7	83.1-87.8	6.8	16.6	12.11	12.3	1.3	3.8	.78
OVRO 130-PINFLATS	7	83.8-86.8	3.5	8.6	3.54	9.4	5.1	6.6	2.54
OVRO 130-PLATTVIL	9	83.4-88.3	4.9	13.9	5.37	10.0	.8	2.9	.27
OVRO 130-PRESIDIO	8	83.7-88.8	7.9	20.9	11.52	12.3	2.1	7.9	1.93
OVRO 130-PT REYES	6	83.7-88.9	12.7	28.4	16.24	16.3	2.4	8.2	1.69
OVRO 130-PVERDES	2	83.9-85.2	3.4	3.4	.68	-----	-----	-----	-----
OVRO 130-QUINCY	11	82.8-88.8	3.0	9.6	4.63	-4.3	1.3	6.3	2.22
OVRO 130-SANPAULA	1	83.7-83.7	21.1	.0	.00	-----	-----	-----	-----
OVRO 130-VNDNBERG	46	83.6-88.9	7.4	49.8	122.75	36.2	.9	8.0	3.26
OVRO 130-WESTFORD	29	81.5-88.8	3.3	17.5	2.75	-.3	2.6	17.5	2.85
OVRO 130-WETTZELL	7	85.2-87.8	30.2	74.0	46.67	21.0	40.7	72.1	53.18
OVRO 130-YUMA	7	83.8-87.8	2.7	6.6	1.96	5.8	3.5	5.3	1.54
PBLOSSOM-SANPAULA	1	88.1-88.1	10.7	.0	.00	-----	-----	-----	-----
PBLOSSOM-VNDNBERG	9	83.6-88.1	7.9	22.3	14.06	16.4	1.5	5.3	.90
PENTICTN-YELLOWKN	2	84.6-85.7	11.3	11.3	6.88	-----	-----	-----	-----
PIETOWN -WESTFORD	3	88.7-88.8	10.8	15.3	6.77	-----	-----	-----	-----
PINFLATS-PVERDES	3	87.2-88.1	2.6	3.6	.35	-----	-----	-----	-----
PINFLATS-VNDNBERG	18	83.8-88.4	3.6	14.7	6.04	14.9	1.8	6.4	1.22
PINFLATS-YUMA	6	83.8-87.0	5.0	11.2	3.46	10.1	7.2	9.2	2.90
PLATTVIL-VERNAL	1	86.2-86.2	5.7	.0	.00	-----	-----	-----	-----
PLATTVIL-WESTFORD	9	83.4-89.3	7.1	20.2	6.07	-10.8	3.8	13.8	3.23
PRESIDIO-PT REYES	3	83.7-85.8	4.2	6.0	1.07	-----	-----	-----	-----
PRESIDIO-VNDNBERG	18	83.7-89.9	2.2	9.2	4.05	4.2	1.2	6.9	2.46
PRESIDIO-WESTFORD	4	89.8-89.9	5.1	8.8	.87	-----	-----	-----	-----

TABLE 6.3 (continued)									
BASELINE	NUM	SPAN	ERROR	WRMS	CHI	RATE	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	SQR	mm/yr	mm/yr	mm	SQR
PRESIDIO-YUMA	1	87.1-87.1	5.2	.0	.00	-----	-----	-----	-----
PT REYES-VNDNBERG	16	83.7-89.9	2.1	8.2	3.25	4.6	1.0	5.2	1.36
PT REYES-WESTFORD	4	89.8-89.9	3.8	6.5	.44	-----	-----	-----	-----
PT REYES-YUMA	1	87.8-87.8	8.3	.0	.00	-----	-----	-----	-----
PVERDES -VNDNBERG	7	83.9-89.1	6.9	16.9	8.47	10.5	2.6	8.1	2.36
QUINCY -VNDNBERG	13	84.3-89.8	7.1	24.5	40.66	18.0	1.3	5.7	2.40
QUINCY -WESTFORD	2	89.8-89.8	9.1	9.1	1.28	-----	-----	-----	-----
RICHMOND-TROMSONO	1	89.6-89.6	7.4	.0	.00	-----	-----	-----	-----
RICHMOND-WESTFORD	388	84.0-90.0	.6	11.8	6.86	-6.3	.2	5.8	1.67
RICHMOND-WETTZELL	367	84.1-90.0	1.3	25.5	8.79	-14.0	.4	12.6	2.16
ROBLED32-WESTFORD	1	83.3-83.3	706.2	.0	.00	-----	-----	-----	-----
SANPAULA-VNDNBERG	8	83.7-89.1	7.4	19.5	8.73	12.4	2.0	7.0	1.31
SEATTLE1-WESTFORD	1	86.7-86.7	9.9	.0	.00	-----	-----	-----	-----
SNDPOINT-VNDNBERG	3	84.5-86.6	16.6	23.5	5.02	-----	-----	-----	-----
SNDPOINT-WESTFORD	5	88.5-89.5	5.2	10.5	.65	-----	-----	-----	-----
SOURDOGH-VNDNBERG	8	84.6-86.6	7.2	19.0	3.70	20.6	7.9	13.0	2.03
SOURDOGH-WESTFORD	6	88.6-89.6	6.2	13.8	1.40	-----	-----	-----	-----
SOURDOGH-WHTHORSE	3	84.6-86.6	8.1	11.5	4.96	-----	-----	-----	-----
SOURDOGH-YAKATAGA	4	84.6-86.6	2.9	5.0	1.54	-----	-----	-----	-----
TROMSONO-WESTFORD	1	89.6-89.6	6.5	.0	.00	-----	-----	-----	-----
TROMSONO-WETTZELL	4	89.6-89.6	1.6	2.8	.25	-----	-----	-----	-----
VERNAL -VNDNBERG	1	88.8-88.8	5.6	.0	.00	-----	-----	-----	-----
VERNAL -WESTFORD	2	89.3-89.3	1.7	1.7	.07	-----	-----	-----	-----
VERNAL -YUMA	1	88.8-88.8	5.0	.0	.00	-----	-----	-----	-----
VNDNBERG-WESTFORD	10	89.8-89.9	2.6	7.7	.68	-----	-----	-----	-----
VNDNBERG-WHTHORSE	3	84.6-86.6	19.1	27.0	9.97	-----	-----	-----	-----
VNDNBERG-YAKATAGA	4	84.6-86.6	12.2	21.1	5.45	-----	-----	-----	-----
VNDNBERG-YUMA	19	83.8-88.8	6.5	27.5	27.86	25.6	1.7	7.1	1.97
WESTFORD-WETTZELL	485	83.9-90.0	.8	18.4	7.53	-10.1	.3	10.1	2.27
WESTFORD-WHTHORSE	4	88.6-89.6	7.9	13.7	2.25	-----	-----	-----	-----
WESTFORD-YAKATAGA	4	88.6-89.6	2.0	3.4	.12	-----	-----	-----	-----

TABLE 6.4
VERTICAL STATISTICAL SUMMARY
MEAN

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
ALGOPARK-GILCREEK	4	84.6-85.7	24.3	42.1	3.93
ALGOPARK-HRAS 085	5	84.6-85.7	25.3	50.7	2.73
ALGOPARK-MOJAVE12	1	85.6-85.6	24.6	.0	.00
ALGOPARK-PENTICTN	3	84.6-85.7	49.6	70.1	1.78
ALGOPARK-WESTFORD	2	84.7-85.6	.5	.5	.00
ALGOPARK-YELLOWKN	2	84.6-85.7	20.3	20.3	.45
AUSTINTX-HRAS 085	1	87.5-87.5	23.5	.0	.00
AUSTINTX-RICHMOND	1	87.5-87.5	32.5	.0	.00
AUSTINTX-WESTFORD	1	87.5-87.5	24.8	.0	.00
BERMUDA -MARPOINT	3	87.6-87.6	42.4	60.0	5.11
BERMUDA -RICHMOND	4	87.6-87.6	32.8	56.8	2.83
BERMUDA -WESTFORD	4	87.6-87.6	17.9	31.0	1.75
BLKBUTTE-ELY	2	88.8-88.8	13.2	13.2	.29
BLKBUTTE-HATCREEK	5	87.1-88.8	34.2	68.4	3.52
BLKBUTTE-HRAS 085	5	83.9-88.8	20.4	40.7	1.64
BLKBUTTE-MOJAVE12	12	83.9-88.8	13.6	45.2	1.44
BLKBUTTE-MON PEAK	4	83.9-86.8	30.8	53.3	1.77
BLKBUTTE-OCOTILLO	2	84.2-85.0	59.7	59.7	.53
BLKBUTTE-OVRO 130	3	86.4-87.8	29.7	42.0	1.95
BLKBUTTE-PRESIDIO	2	87.4-87.8	112.5	112.5	9.14
BLKBUTTE-PT REYES	1	87.1-87.1	53.1	.0	.00
BLKBUTTE-VNDNBERG	12	83.9-88.8	14.6	48.3	1.44
BLOOMIND-HRAS 085	1	87.6-87.6	50.5	.0	.00
BLOOMIND-WESTFORD	1	87.6-87.6	50.3	.0	.00
BREST -MOJAVE12	2	89.7-89.7	25.8	25.8	1.29
BREST -NOTO	4	89.7-89.7	24.8	43.0	3.21
BREST -ONSALA60	1	89.7-89.7	27.0	.0	.00
BREST -RICHMOND	1	89.7-89.7	34.3	.0	.00
BREST -WESTFORD	2	89.7-89.7	14.7	14.7	.48
BREST -WETTZELL	4	89.7-89.7	27.1	46.9	4.86
CARNUSTY-MOJAVE12	1	89.6-89.6	31.5	.0	.00
CARNUSTY-RICHMOND	1	89.6-89.6	33.7	.0	.00
CARNUSTY-WESTFORD	1	89.6-89.6	31.6	.0	.00
CARNUSTY-WETTZELL	4	89.6-89.6	16.9	29.3	.97
CARROLGA-HRAS 085	1	87.5-87.5	50.4	.0	.00
CARROLGA-RICHMOND	1	87.5-87.5	45.5	.0	.00
CARROLGA-WESTFORD	1	87.5-87.5	43.7	.0	.00
CHLBOLTN-HAYSTACK	7	80.8-80.8	36.1	88.3	.07
CHLBOLTN-HRAS 085	7	80.8-80.8	44.2	108.3	.04
CHLBOLTN-ONSALA60	7	80.8-80.8	24.0	58.9	.53
CHLBOLTN-OVRO 130	6	80.8-80.8	48.4	108.2	.04
DEADMANL-JPL MV1	1	88.1-88.1	56.4	.0	.00

TABLE 6.4 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
DEADMANL-MOJAVE12	5	84.2-88.1	25.0	49.9	2.24
DEADMANL-SANPAULA	4	84.2-87.9	52.9	91.7	2.40
DEADMANL-VNDNBERG	5	84.2-88.1	39.4	78.9	2.67
DSS15 -GILCREEK	1	89.6-89.6	19.4	.0	.00
DSS15 -GOLDVENU	1	87.8-87.8	13.4	.0	.00
DSS15 -HAYSTACK	1	89.6-89.6	17.8	.0	.00
DSS15 -MOJ 7288	1	87.8-87.8	16.8	.0	.00
DSS15 -MOJAVE12	1	87.8-87.8	12.1	.0	.00
DSS15 -OVR 7853	1	87.8-87.8	13.4	.0	.00
DSS15 -OVRO 130	1	87.8-87.8	13.9	.0	.00
DSS15 -YAKATAGA	1	89.6-89.6	36.3	.0	.00
DSS45 -GILCREEK	8	88.5-90.0	21.3	56.3	3.24
DSS45 -HOBART26	2	89.9-90.0	28.1	28.1	3.50
DSS45 -KASHIMA	8	88.5-90.0	14.6	38.5	1.97
DSS45 -KAUAI	9	88.4-90.0	14.8	41.9	2.04
DSS45 -KWAJAL26	3	88.5-88.6	24.2	34.3	.84
DSS45 -MOJAVE12	1	88.4-88.4	40.4	.0	.00
DSS45 -SESHAN25	7	88.5-90.0	21.8	53.5	3.46
DSS65 -HRAS 085	1	88.8-88.8	35.1	.0	.00
DSS65 -MEDICINA	4	88.7-89.1	9.6	16.6	4.09
DSS65 -MOJAVE12	1	88.8-88.8	36.6	.0	.00
DSS65 -NOTO	1	89.4-89.4	11.1	.0	.00
DSS65 -ONSALA60	5	88.8-89.4	11.5	22.9	5.69
DSS65 -RICHMOND	3	88.7-89.0	19.5	27.6	1.69
DSS65 -WESTFORD	5	88.7-89.4	8.9	17.8	1.06
DSS65 -WETTZELL	5	88.7-89.4	8.3	16.6	3.84
EFLSBERG-HAYSTACK	8	79.9-83.3	83.2	220.0	.31
EFLSBERG-HRAS 085	6	80.6-83.3	49.3	110.3	.04
EFLSBERG-NRAO 140	1	79.9-79.9	464.0	.0	.00
EFLSBERG-ONSALA60	6	80.6-83.3	11.7	26.2	.19
EFLSBERG-OVRO 130	6	79.9-80.7	90.7	202.9	.14
EFLSBERG-ROBLED32	1	83.3-83.3	150.7	.0	.00
EFLSBERG-WESTFORD	1	83.3-83.3	472.2	.0	.00
ELY -HATCREEK	9	85.3-89.3	14.7	41.6	1.67
ELY -HRAS 085	10	84.3-89.3	11.0	33.1	.91
ELY -MOJAVE12	10	84.3-89.3	12.9	38.7	1.84
ELY -OVRO 130	1	86.3-86.3	34.7	.0	.00
ELY -PLATTVIL	3	84.3-86.3	32.8	46.4	.79
ELY -VNDNBERG	5	87.4-88.8	9.8	19.6	.54
ELY -WESTFORD	2	89.3-89.3	43.8	43.8	2.41
ELY -YUMA	3	87.4-88.3	39.8	56.3	1.37
FLAGSTAF-HATCREEK	6	84.3-88.8	29.2	65.2	2.65
FLAGSTAF-HRAS 085	6	84.3-88.8	22.4	50.0	1.65
FLAGSTAF-MOJAVE12	6	84.3-88.8	22.1	49.5	2.08
FLAGSTAF-PLATTVIL	4	84.3-88.8	34.9	60.4	1.83
FLAGSTAF-VERNAL	2	87.3-88.3	18.2	18.2	.35
FORT ORD-GILCREEK	4	88.1-88.1	18.0	31.1	.66
FORT ORD-HATCREEK	10	84.1-88.1	28.8	86.5	4.39
FORT ORD-HRAS 085	4	85.2-87.8	34.0	58.9	2.23
FORT ORD-JPL MV1	1	87.8-87.8	40.9	.0	.00

TABLE 6.4 (continued)					
BASELINE	NUM	SPAN	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	SQR
FORT ORD-MOJAVE12	11	83.7-88.1	12.7	40.1	1.13
FORT ORD-MON PEAK	1	87.1-87.1	46.5	.0	.00
FORT ORD-OVRO 130	5	83.7-87.8	13.2	26.3	.37
FORT ORD-PRESIDIO	4	83.7-88.1	21.4	37.1	.86
FORT ORD-PT REYES	3	87.4-88.1	56.6	80.0	4.69
FORT ORD-VNDNBERG	11	83.7-88.1	14.8	46.8	1.27
FORTORDS-GILCREEK	13	88.9-89.9	9.3	32.4	.85
FORTORDS-HATCREEK	14	88.9-89.9	8.3	30.1	.98
FORTORDS-HAYSTACK	10	89.8-89.9	13.9	41.6	1.56
FORTORDS-MOJAVE12	15	88.9-89.9	9.0	33.8	1.17
FORTORDS-OVRO 130	2	88.9-88.9	34.7	34.7	1.22
FORTORDS-PRESIDIO	3	89.8-89.9	41.7	59.0	2.10
FORTORDS-PT REYES	5	88.9-89.9	15.2	30.4	.48
FORTORDS-QUINCY	2	89.8-89.8	19.9	19.9	.29
FORTORDS-VNDNBERG	15	88.9-89.9	10.8	40.3	1.50
FORTORDS-WESTFORD	9	89.8-89.9	14.3	40.6	1.52
FTD 7900-HRAS 085	1	88.8-88.8	15.4	.0	.00
FTD 7900-MOJAVE12	1	88.8-88.8	17.2	.0	.00
FTD 7900-PIETOWN	1	88.8-88.8	14.8	.0	.00
FTD 7900-WESTFORD	1	88.8-88.8	22.7	.0	.00
GILCREEK-GOLDVENU	1	88.5-88.5	19.7	.0	.00
GILCREEK-HALEAKAL	3	88.5-88.5	29.0	41.0	1.61
GILCREEK-HATCREEK	47	85.4-89.9	6.3	42.9	3.03
GILCREEK-HAYSTACK	78	84.7-89.9	4.0	35.3	2.55
GILCREEK-HOBART26	4	89.7-90.0	18.9	32.8	1.52
GILCREEK-HRAS 085	54	84.6-89.5	5.5	40.4	2.86
GILCREEK-KASHIMA	100	84.6-90.0	4.9	48.7	2.75
GILCREEK-KAUAI	69	84.5-90.0	4.6	37.7	2.16
GILCREEK-KODIAK	12	84.6-89.5	11.6	38.5	1.33
GILCREEK-KWAJAL26	20	84.5-88.6	13.9	60.6	2.33
GILCREEK-MOJAVE12	134	84.5-90.0	2.6	29.7	2.07
GILCREEK-NOBEY 6M	1	89.9-89.9	62.7	.0	.00
GILCREEK-NOME	7	84.5-86.6	14.6	35.7	.77
GILCREEK-ONSALA60	7	85.5-88.9	16.0	39.3	2.22
GILCREEK-OVRO 130	11	85.4-88.9	11.1	35.1	2.30
GILCREEK-PENTICTN	2	84.6-85.7	1.4	1.4	.00
GILCREEK-PLATTVIL	8	85.4-89.3	17.1	45.2	2.51
GILCREEK-PRESIDIO	6	88.1-89.9	19.0	42.5	1.25
GILCREEK-PT REYES	8	88.1-89.9	12.3	32.6	.87
GILCREEK-QUINCY	2	89.8-89.8	20.8	20.8	.44
GILCREEK-RICHMOND	23	87.3-89.8	14.1	66.1	1.90
GILCREEK-SESHAN25	9	88.3-90.0	16.5	46.8	3.23
GILCREEK-SHANGHAI	1	86.5-86.5	170.4	.0	.00
GILCREEK-SNDPOINT	10	84.5-89.5	10.8	32.3	.84
GILCREEK-SOURDOGH	16	84.6-89.6	11.1	43.1	1.98
GILCREEK-VNDNBERG	65	84.5-89.9	4.5	36.3	1.87
GILCREEK-WESTFORD	73	84.7-89.9	4.2	35.5	2.63
GILCREEK-WETTZELL	11	84.7-89.9	16.4	51.9	3.82
GILCREEK-WHTHORSE	9	84.6-89.6	21.4	60.5	3.69
GILCREEK-YAKATAGA	13	84.6-89.6	13.8	47.7	2.21

TABLE 6.4 (continued)					
BASILINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
GILCREEK-YELLOWKN	2	84.6-85.7	19.8	19.8	.48
GOLDVENU-HAYSTACK	5	81.9-88.5	4.5	8.9	.04
GOLDVENU-HRAS 085	3	81.9-82.8	31.2	44.1	.09
GOLDVENU-MOJ 7288	1	87.8-87.8	15.6	.0	.00
GOLDVENU-MOJAVE12	5	83.7-88.5	3.9	7.8	.62
GOLDVENU-NRAO 140	1	81.9-81.9	303.3	.0	.00
GOLDVENU-ONSALA60	3	81.9-82.5	154.4	218.4	.21
GOLDVENU-OVR 7853	1	87.8-87.8	11.7	.0	.00
GOLDVENU-OVRO 130	6	81.9-87.8	8.9	19.9	.56
GOLDVENU-PRESIDIO	1	83.7-83.7	109.4	.0	.00
GOLDVENU-PT REYES	1	83.7-83.7	103.2	.0	.00
GOLDVENU-QUINCY	1	82.8-82.8	79.8	.0	.00
GOLDVENU-VNDNBERG	1	83.7-83.7	87.6	.0	.00
GOLDVENU-WESTFORD	4	81.9-88.5	4.9	8.5	.05
GORF7102-HRAS 085	1	89.4-89.4	28.5	.0	.00
GORF7102-MARPOINT	2	89.4-89.4	6.8	6.8	.10
GORF7102-MOJAVE12	2	89.8-89.8	4.1	4.1	.03
GORF7102-NRAO85 3	2	89.4-89.4	38.1	38.1	3.04
GORF7102-RICHMOND	4	89.4-89.8	13.1	22.7	.73
GORF7102-WESTFORD	4	89.4-89.8	4.2	7.2	.09
GRASSE -MOJAVE12	1	89.7-89.7	34.9	.0	.00
GRASSE -NOTO	2	89.7-89.7	14.9	14.9	.91
GRASSE -RICHMOND	1	89.7-89.7	37.7	.0	.00
GRASSE -WESTFORD	1	89.7-89.7	32.2	.0	.00
GRASSE -WETTZELL	4	89.7-89.7	7.4	12.8	.83
HALEAKAL-KAUAI	3	88.5-88.5	25.1	35.5	2.02
HALEAKAL-MOJAVE12	3	88.5-88.5	27.9	39.5	1.43
HARTRAO -HRAS 085	6	87.1-89.2	26.5	59.2	3.19
HARTRAO -MEDICINA	3	88.0-89.1	55.4	78.4	4.67
HARTRAO -MOJAVE12	1	90.0-90.0	53.9	.0	.00
HARTRAO -ONSALA60	5	86.0-88.0	24.1	48.2	1.41
HARTRAO -RICHMOND	18	86.0-90.0	14.8	61.1	1.88
HARTRAO -WESTFORD	23	86.0-89.2	12.2	57.1	1.66
HARTRAO -WETTZELL	16	86.0-90.0	14.3	55.3	2.75
HATCREEK-HAYSTACK	26	83.4-89.9	7.1	35.5	1.82
HATCREEK-HRAS 085	62	83.4-89.4	5.0	39.1	1.86
HATCREEK-JPL MV1	2	83.5-87.8	8.8	8.8	.05
HATCREEK-KASHIMA	15	84.1-89.8	11.4	42.6	2.46
HATCREEK-KAUAI	15	85.4-89.8	8.8	32.8	1.71
HATCREEK-KODIAK	2	87.5-87.5	30.8	30.8	1.28
HATCREEK-MAMMOTHL	1	83.5-83.5	57.5	.0	.00
HATCREEK-MOJAVE12	111	83.5-89.9	3.3	35.1	2.38
HATCREEK-MON PEAK	20	83.5-89.4	11.1	48.4	1.79
HATCREEK-OVRO 130	32	83.4-88.9	9.0	50.3	2.64
HATCREEK-PLATTVIL	20	83.4-89.3	13.0	56.6	2.75
HATCREEK-PRESIDIO	12	85.8-89.9	17.2	57.2	2.54
HATCREEK-PT REYES	14	84.2-89.9	17.5	63.2	2.75
HATCREEK-PVERDES	2	89.1-89.1	20.5	20.5	.61
HATCREEK-QUINCY	12	83.5-89.8	15.2	50.3	2.85
HATCREEK-SANPAULA	2	89.1-89.1	63.6	63.6	6.97

BASELINE	TABLE 6.4 (continued)				
	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
HATCREEK-SNDPOINT	1	87.6-87.6	2118.5	.0	.00
HATCREEK-VERNAL	6	86.2-89.3	12.3	27.5	.76
HATCREEK-VNDNBERG	79	84.1-89.9	4.6	40.3	2.76
HATCREEK-WESTFORD	24	83.4-89.9	6.6	31.8	1.49
HATCREEK-YAKATAGA	3	87.6-87.6	11.4	16.1	.16
HATCREEK-YUMA	12	85.2-88.8	12.0	39.7	1.31
HAYSTACK-HRAS 085	622	80.3-89.5	1.5	37.1	1.38
HAYSTACK-KASHIMA	10	84.7-89.9	23.3	70.0	5.42
HAYSTACK-KODIAK	6	88.5-89.5	15.2	34.0	.83
HAYSTACK-MARPOINT	11	82.5-89.4	15.4	48.6	2.57
HAYSTACK-MOJAVE12	151	83.5-90.0	2.6	32.5	2.35
HAYSTACK-NRAO 140	10	79.6-88.8	8.5	25.5	.76
HAYSTACK-ONSALA60	170	80.6-89.9	3.6	46.5	2.09
HAYSTACK-OVRO 130	57	79.6-88.8	6.3	47.4	1.24
HAYSTACK-PLATTVIL	10	83.4-89.3	16.5	49.4	2.36
HAYSTACK-PRESIDIO	5	89.8-89.9	32.5	65.1	2.47
HAYSTACK-ROBLED32	2	83.3-83.3	2.1	2.1	.00
HAYSTACK-VNDNBERG	11	89.8-89.9	12.6	40.0	2.37
HAYSTACK-WESTFORD	12	81.4-89.8	2.8	9.2	.51
HAYSTACK-WETTZELL	491	83.9-90.0	1.7	37.2	1.93
HAYSTACK-YAKATAGA	5	88.6-89.6	16.7	33.5	1.03
HOBART26-KASHIMA	4	89.7-90.0	11.6	20.2	.67
HOBART26-KAUAI	3	89.7-90.0	25.0	35.3	1.97
HOBART26-MOJAVE12	1	90.0-90.0	26.0	.0	.00
HOBART26-SESHAN25	1	90.0-90.0	24.6	.0	.00
HOHENFRG-MOJAVE12	2	89.5-89.5	2.3	2.3	.01
HOHENFRG-NOTO	5	89.5-89.5	9.2	18.4	.94
HOHENFRG-RICHMOND	2	89.5-89.5	17.3	17.3	.56
HOHENFRG-WESTFORD	2	89.5-89.5	24.2	24.2	1.33
HOHENFRG-WETTZELL	5	89.5-89.5	7.1	14.2	.83
HRAS 085-JPL MV1	3	82.8-87.8	27.1	38.3	.43
HRAS 085-KASHIMA	26	87.3-89.5	11.1	55.7	1.46
HRAS 085-KODIAK	1	89.5-89.5	50.2	.0	.00
HRAS 085-LEONRDOK	1	87.6-87.6	31.8	.0	.00
HRAS 085-MAMMOTHL	1	83.5-83.5	128.9	.0	.00
HRAS 085-MARPOINT	3	82.8-89.4	5.7	8.1	.08
HRAS 085-MCD 7850	1	88.8-88.8	12.6	.0	.00
HRAS 085-MEDICINA	12	87.3-89.1	6.2	20.5	.50
HRAS 085-MILESOMON	1	88.3-88.3	42.8	.0	.00
HRAS 085-MOJAVE12	123	83.5-89.4	2.3	25.3	1.34
HRAS 085-MON PEAK	33	82.8-89.4	7.6	43.1	1.08
HRAS 085-NRAO 140	6	80.3-88.8	8.3	18.6	.38
HRAS 085-NRAO85 3	1	89.4-89.4	22.4	.0	.00
HRAS 085-ONSALA60	108	80.6-89.4	4.3	44.5	1.02
HRAS 085-OVRO 130	73	80.3-88.8	4.8	40.5	1.14
HRAS 085-PENTICTN	3	84.6-85.7	86.7	122.6	4.53
HRAS 085-PIETOWN	3	88.7-88.8	2.1	3.0	.15
HRAS 085-PINFLATS	5	85.8-87.0	23.5	47.1	1.41
HRAS 085-PLATTVIL	20	83.4-89.3	11.5	49.9	2.20
HRAS 085-PRESIDIO	4	85.2-87.1	30.2	52.4	1.87

TABLE 6.4 (continued)					
BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
HRAS 085-PT REYES	2	85.2-85.8	15.7	15.7	.19
HRAS 085-QUINCY	14	82.8-89.3	13.4	48.2	1.75
HRAS 085-RICHMOND	342	84.0-89.5	2.0	37.2	1.08
HRAS 085-ROBLED32	1	83.3-83.3	219.3	.0	.00
HRAS 085-VERNAL	6	86.2-89.3	23.8	53.3	3.34
HRAS 085-VNDNBERG	44	83.9-89.4	6.7	44.0	2.34
HRAS 085-WESTFORD	586	81.4-89.5	1.5	35.7	1.34
HRAS 085-WETTZELL	404	83.9-89.5	1.7	33.2	.89
HRAS 085-YELLOWKN	2	84.6-85.7	74.5	74.5	4.50
HRAS 085-YUMA	18	83.8-88.8	9.9	41.0	1.31
JPL MV1 -MAMMOTHL	4	83.5-86.8	48.0	83.2	2.26
JPL MV1 -MOJAVE12	21	83.5-88.8	10.5	46.9	1.19
JPL MV1 -MON PEAK	1	82.8-82.8	96.0	.0	.00
JPL MV1 -OVRO 130	19	82.8-88.8	14.8	62.9	1.40
JPL MV1 -PBLOSSOM	7	83.1-88.0	31.2	76.3	1.19
JPL MV1 -PINFLATS	6	83.8-87.0	32.6	73.0	2.23
JPL MV1 -PRESIDIO	2	88.8-88.8	65.6	65.6	5.33
JPL MV1 -QUINCY	1	82.8-82.8	411.6	.0	.00
JPL MV1 -VNDNBERG	18	83.6-88.8	23.1	95.2	4.35
KASHIMA -KAUAI	60	84.6-90.0	8.0	61.4	6.34
KASHIMA -KWAJAL26	16	84.6-88.6	9.9	38.3	1.37
KASHIMA -MOJAVE12	46	84.1-90.0	6.8	45.8	2.60
KASHIMA -NOBEY 6M	1	89.9-89.9	58.2	.0	.00
KASHIMA -ONSALA60	6	85.5-88.9	15.3	34.2	1.25
KASHIMA -RICHMOND	24	87.3-89.8	12.1	58.1	1.39
KASHIMA -SESHAN25	9	88.3-90.0	12.2	34.5	3.14
KASHIMA -SHANGHAI	1	86.5-86.5	188.4	.0	.00
KASHIMA -VNDNBERG	26	85.4-89.8	9.9	49.4	3.17
KASHIMA -WESTFORD	8	85.5-89.9	24.0	63.6	5.11
KASHIMA -WETTZELL	10	84.7-89.9	24.1	72.4	6.56
KASHIMA -WHTHORSE	1	89.6-89.6	47.0	.0	.00
KAUAI -KWAJAL26	20	84.5-88.6	16.1	70.2	3.52
KAUAI -MOJAVE12	39	84.5-89.7	6.1	37.6	2.17
KAUAI -SESHAN25	9	88.3-90.0	17.6	49.7	4.30
KAUAI -SHANGHAI	1	86.5-86.5	181.7	.0	.00
KAUAI -VNDNBERG	31	84.5-89.8	7.0	38.5	2.12
KAUAI -WHTHORSE	1	89.6-89.6	48.4	.0	.00
KODIAK -MOJAVE12	7	87.5-89.5	11.3	27.7	.67
KODIAK -NOME	4	84.6-86.6	35.3	61.1	.74
KODIAK -VNDNBERG	4	84.6-86.6	35.5	61.5	1.22
KODIAK -WESTFORD	5	88.5-89.5	18.4	36.9	1.03
KWAJAL26-MOJAVE12	17	84.5-88.6	18.5	74.1	3.16
KWAJAL26-SESHAN25	3	88.5-88.6	36.0	51.0	2.88
KWAJAL26-VNDNBERG	12	84.5-88.6	20.3	67.2	2.84
LEONRDOK-RICHMOND	1	87.6-87.6	32.3	.0	.00
LEONRDOK-WESTFORD	1	87.6-87.6	27.9	.0	.00
MAMMOTHL-MOJAVE12	4	83.5-86.8	31.2	54.0	1.94
MAMMOTHL-OVRO 130	4	83.5-86.8	23.7	41.1	.84
MAMMOTHL-VNDNBERG	2	84.8-86.8	72.1	72.1	6.88
MARPOINT-NRAO85 3	2	89.4-89.4	31.1	31.1	4.66

TABLE 6.4 (continued)

BASELINE	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
MARPOINT-ONSALA60	4	82.5-83.7	103.9	179.9	.12
MARPOINT-OVRO 130	3	82.5-82.8	35.0	49.5	.03
MARPOINT-RICHMOND	5	87.6-89.4	19.4	38.9	2.74
MARPOINT-WESTFORD	9	82.5-89.4	17.1	48.4	3.07
MCD 7850-MOJAVE12	1	88.8-88.8	14.6	.0	.00
MCD 7850-PIETOWN	1	88.8-88.8	11.8	.0	.00
MCD 7850-WESTFORD	1	88.8-88.8	19.8	.0	.00
MEDICINA-ONSALA60	7	87.3-89.1	8.3	20.4	3.37
MEDICINA-RICHMOND	13	87.3-89.0	7.6	26.4	.77
MEDICINA-WESTFORD	19	87.3-89.1	8.0	34.1	2.09
MEDICINA-WETTZELL	15	87.3-89.1	5.9	22.3	2.93
METSHOVI-MOJAVE12	1	89.5-89.5	36.5	.0	.00
METSHOVI-ONSALA60	4	89.5-89.5	7.2	12.5	.26
METSHOVI-RICHMOND	1	89.5-89.5	41.0	.0	.00
METSHOVI-WESTFORD	1	89.5-89.5	38.5	.0	.00
METSHOVI-WETTZELL	4	89.5-89.5	16.8	29.1	1.46
MILESMON-MOJAVE12	1	88.3-88.3	42.6	.0	.00
MILESMON-WESTFORD	1	88.3-88.3	48.7	.0	.00
MOJ 7288-MOJAVE12	1	87.8-87.8	14.9	.0	.00
MOJ 7288-OVR 7853	1	87.8-87.8	16.4	.0	.00
MOJ 7288-OVRO 130	1	87.8-87.8	16.4	.0	.00
MOJAVE12-MON PEAK	32	83.5-89.4	7.6	42.1	1.53
MOJAVE12-NOBEY 6M	1	89.9-89.9	55.1	.0	.00
MOJAVE12-NOTO	4	89.5-89.7	7.6	13.2	.29
MOJAVE12-NRAO 140	1	88.8-88.8	18.2	.0	.00
MOJAVE12-OCOTILLO	3	84.2-85.2	63.0	89.0	3.10
MOJAVE12-ONSALA60	26	83.8-89.9	7.4	37.0	1.83
MOJAVE12-OVR 7853	1	87.8-87.8	9.4	.0	.00
MOJAVE12-OVRO 130	72	83.5-88.9	3.2	27.3	1.09
MOJAVE12-PBLOSSOM	9	83.6-88.1	16.4	46.3	1.43
MOJAVE12-PIETOWN	3	88.7-88.8	12.5	17.6	4.21
MOJAVE12-PINFLATS	19	83.8-88.4	10.5	44.5	1.53
MOJAVE12-PLATTVIL	19	84.3-89.3	9.3	39.5	1.54
MOJAVE12-PRESIDIO	18	83.7-89.9	9.5	39.3	1.41
MOJAVE12-PT REYES	16	83.7-89.9	6.1	23.4	.51
MOJAVE12-PVERDES	7	83.9-89.1	11.1	27.3	.49
MOJAVE12-QUINCY	15	83.5-89.8	10.4	38.9	1.97
MOJAVE12-RICHMOND	45	84.0-90.0	4.3	28.6	1.42
MOJAVE12-SANPAULA	8	83.7-89.1	16.1	42.6	.96
MOJAVE12-SEATTLE1	1	86.7-86.7	44.8	.0	.00
MOJAVE12-SNDPOINT	7	87.6-89.5	16.7	41.0	1.29
MOJAVE12-SOURDOGH	8	87.6-89.6	15.8	41.7	1.56
MOJAVE12-TROMSONO	1	89.6-89.6	27.7	.0	.00
MOJAVE12-VERNAL	6	86.2-89.3	20.5	45.9	3.45
MOJAVE12-VNDNBERG	149	83.6-89.9	2.7	33.4	2.51
MOJAVE12-WESTFORD	144	83.5-90.0	2.6	31.2	2.21
MOJAVE12-WETTZELL	62	84.7-90.0	3.3	26.1	1.13
MOJAVE12-WHTHORSE	5	88.6-89.6	31.8	63.7	4.83
MOJAVE12-YAKATAGA	7	87.6-89.6	17.1	41.9	1.63
MOJAVE12-YUMA	21	83.8-88.8	8.4	37.4	1.37

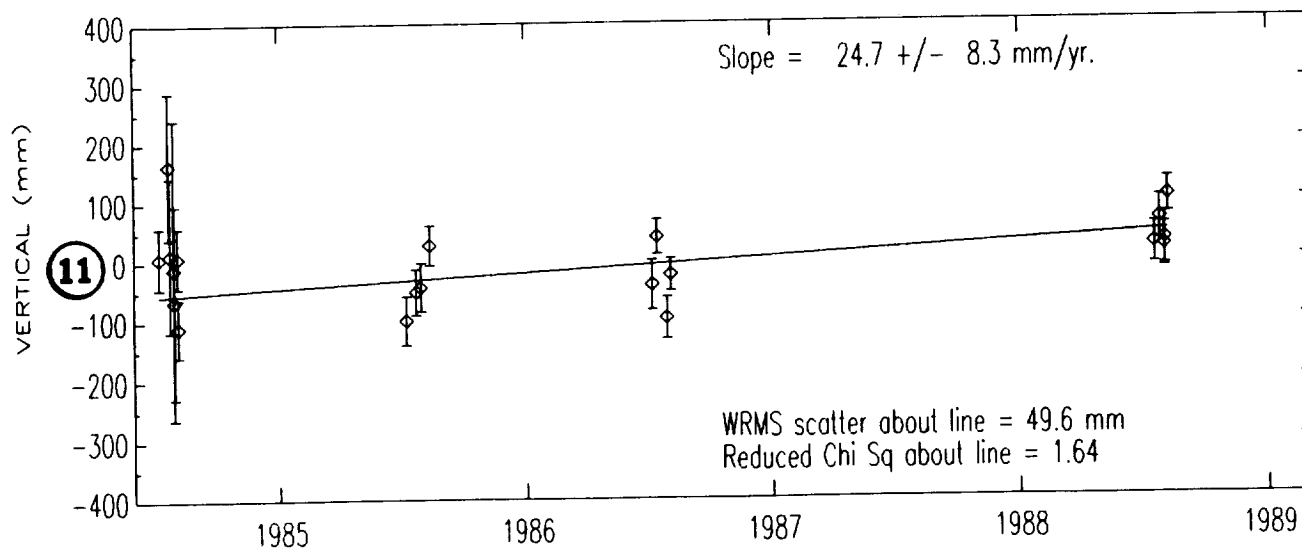
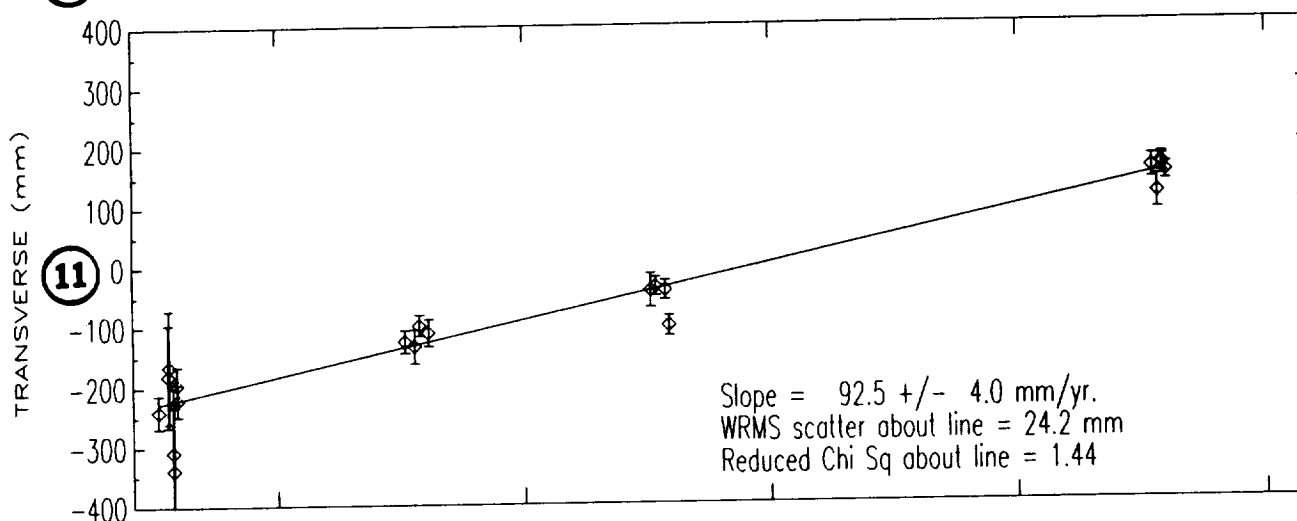
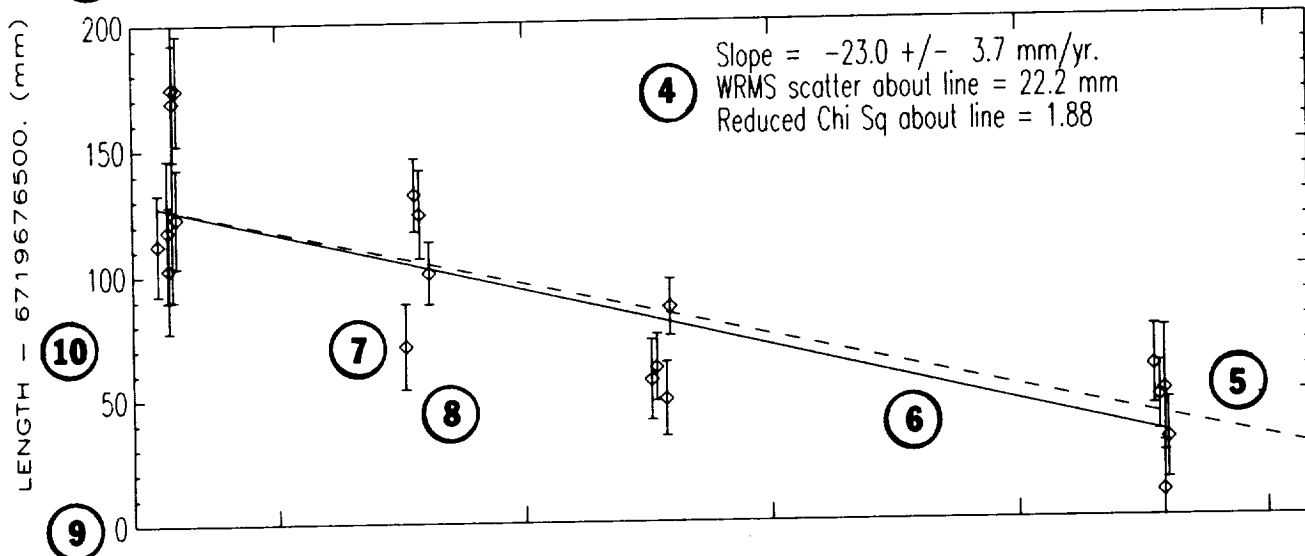
TABLE 6.4 (continued)					
BASELINE	NUM	SPAN	ERROR	WRMS	CHI
	OBS	yr to yr	mm	mm	SQR
MON PEAK-OVRO 130	18	82.8-88.8	10.9	45.0	1.08
MON PEAK-QUINCY	11	83.5-88.8	14.8	46.7	1.24
MON PEAK-VNDNBERG	26	83.9-89.4	9.4	47.2	1.87
MON PEAK-YUMA	8	83.8-87.9	21.5	56.9	1.99
NOME -SNDPOINT	3	84.5-86.6	50.0	70.7	1.70
NOME -VNDNBERG	7	84.5-86.6	13.7	33.7	.41
NOTO -ONSALA60	2	89.4-89.7	14.3	14.3	1.89
NOTO -RICHMOND	3	89.5-89.7	27.0	38.2	2.73
NOTO -WESTFORD	5	89.4-89.7	14.6	29.2	1.73
NOTO -WETTZELL	12	89.4-89.7	6.9	22.7	2.51
NRAO 140-ONSALA60	4	81.9-83.0	95.1	164.7	.07
NRAO 140-OVRO 130	8	79.6-88.8	14.1	37.2	.65
NRAO 140-WESTFORD	5	81.9-88.8	5.2	10.3	.25
NRAO85 3-RICHMOND	2	89.4-89.4	36.9	36.9	5.69
NRAO85 3-WESTFORD	2	89.4-89.4	34.9	34.9	5.98
OCOTILLO-OVRO 130	1	85.2-85.2	53.5	.0	.00
OCOTILLO-PVERDES	1	85.2-85.2	62.2	.0	.00
OCOTILLO-VNDNBERG	3	84.2-85.2	76.9	108.7	4.10
ONSALA60-OVRO 130	33	80.6-87.8	10.6	60.2	.96
ONSALA60-RICHMOND	52	84.1-89.9	5.4	38.6	1.31
ONSALA60-ROBLED32	1	83.3-83.3	218.7	.0	.00
ONSALA60-TROMSONO	4	89.6-89.6	13.3	23.0	1.06
ONSALA60-WESTFORD	132	81.4-89.9	4.0	45.5	2.44
ONSALA60-WETTZELL	110	83.9-89.9	2.3	24.3	2.33
OVR 7853-OVRO 130	1	87.8-87.8	12.3	.0	.00
OVRO 130-PBLOSSOM	7	83.1-87.8	15.1	37.1	.50
OVRO 130-PINFLATS	7	83.8-86.8	10.8	26.3	.32
OVRO 130-PLATTVIL	9	83.4-88.3	21.9	62.0	3.17
OVRO 130-PRESIDIO	8	83.7-88.8	17.3	45.8	1.51
OVRO 130-PT REYES	6	83.7-88.9	17.6	39.3	.82
OVRO 130-PVERDES	2	83.9-85.2	6.2	6.2	.01
OVRO 130-QUINCY	11	82.8-88.8	18.1	57.1	2.80
OVRO 130-SANPAULA	1	83.7-83.7	82.6	.0	.00
OVRO 130-VNDNBERG	46	83.6-88.9	8.4	56.6	2.35
OVRO 130-WESTFORD	29	81.5-88.8	6.1	32.3	.98
OVRO 130-WETTZELL	7	85.2-87.8	22.5	55.1	3.70
OVRO 130-YUMA	7	83.8-87.8	23.7	58.1	2.01
PBLOSSOM-SANPAULA	1	88.1-88.1	70.5	.0	.00
PBLOSSOM-VNDNBERG	9	83.6-88.1	13.4	37.9	.72
PENTICTN-YELLOWKN	2	84.6-85.7	21.2	21.2	.20
PIETOWN -WESTFORD	3	88.7-88.8	10.5	14.8	1.21
PINFLATS-PVERDES	3	87.2-88.1	27.1	38.3	1.01
PINFLATS-VNDNBERG	18	83.8-88.4	16.3	67.3	2.83
PINFLATS-YUMA	6	83.8-87.0	14.4	32.2	.38
PLATTVIL-VERNAL	1	86.2-86.2	39.9	.0	.00
PLATTVIL-WESTFORD	9	83.4-89.3	17.7	50.1	2.61
PRESIDIO-PT REYES	3	83.7-85.8	51.6	73.0	2.04
PRESIDIO-VNDNBERG	18	83.7-89.9	12.7	52.4	2.01
PRESIDIO-WESTFORD	4	89.8-89.9	40.2	69.6	2.83
PRESIDIO-YUMA	1	87.1-87.1	43.7	.0	.00

BASELINE	TABLE 6.4 (continued)				
	NUM OBS	SPAN yr to yr	ERROR mm	WRMS mm	CHI SQR
PT REYES-VNDNBERG	16	83.7-89.9	9.3	35.9	1.02
PT REYES-WESTFORD	4	89.8-89.9	21.1	36.6	.78
PT REYES-YUMA	1	87.8-87.8	58.1	.0	.00
PVERDES -VNDNBERG	7	83.9-89.1	21.4	52.5	1.56
QUINCY -VNDNBERG	13	84.3-89.8	11.1	38.4	1.67
QUINCY -WESTFORD	2	89.8-89.8	30.9	30.9	1.00
RICHMOND-TROMSONO	1	89.6-89.6	28.4	.0	.00
RICHMOND-WESTFORD	388	84.0-90.0	1.5	28.7	1.27
RICHMOND-WETTZELL	367	84.1-90.0	2.0	38.7	1.38
ROBLED32-WESTFORD	1	83.3-83.3	178.5	.0	.00
SANPAULA-VNDNBERG	8	83.7-89.1	20.1	53.3	1.32
SEATTLE1-WESTFORD	1	86.7-86.7	55.9	.0	.00
SNDPOINT-VNDNBERG	3	84.5-86.6	53.9	76.3	2.37
SNDPOINT-WESTFORD	5	88.5-89.5	19.1	38.2	1.19
SOURDOGH-VNDNBERG	8	84.6-86.6	16.1	42.6	.93
SOURDOGH-WESTFORD	6	88.6-89.6	19.2	42.9	1.63
SOURDOGH-WHTHORSE	3	84.6-86.6	17.6	24.9	.27
SOURDOGH-YAKATAGA	4	84.6-86.6	28.0	48.5	1.08
TROMSONO-WESTFORD	1	89.6-89.6	26.3	.0	.00
TROMSONO-WETTZELL	4	89.6-89.6	8.1	14.0	.38
VERNAL -VNDNBERG	1	88.8-88.8	22.0	.0	.00
VERNAL -WESTFORD	2	89.3-89.3	6.8	6.8	.07
VERNAL -YUMA	1	88.8-88.8	29.6	.0	.00
VNDNBERG-WESTFORD	10	89.8-89.9	12.2	36.6	2.03
VNDNBERG-WHTHORSE	3	84.6-86.6	38.3	54.1	1.62
VNDNBERG-YAKATAGA	4	84.6-86.6	31.8	55.1	1.33
VNDNBERG-YUMA	19	83.8-88.8	14.1	59.6	3.08
WESTFORD-WETTZELL	485	83.9-90.0	1.7	36.5	1.86
WESTFORD-WHTHORSE	4	88.6-89.6	44.1	76.3	6.70
WESTFORD-YAKATAGA	4	88.6-89.6	21.7	37.7	1.37

① GILCREEK TO KWAJAL26

(Length = 6719 km) ②

③ 20 Observations



7.0 BASELINE EVOLUTION

Plots 7-2 through 7-152 present the observed variation of the baseline components over the period of the observations for those baselines with at least five observations spanning a minimum of 2 years. The transverse and vertical components are shown as offsets from their mean values. See the text for the definition and interpretation of the transverse and vertical components. An example plot appears on the facing page. The notes below are provided to clarify the interpretation of the plots.

- 1 -- Baseline name
- 2 -- Baseline length in kilometers
- 3 -- Number of sessions including observations on this baseline
- 4 -- Baseline component statistics (in mm/yr and mm)
- 5 -- Dashed line (length plots only) indicates slope predicted by AM0-2 assuming sites occupy plates indicated in Table 4.1
- 6 -- Line of best fit by least squares
- 7 -- Observed value (in mm)
- 8 -- One-sigma formal error bar, style changes with number of observations
Some may be omitted for clarity
- 9 -- Standard scales spanning 200, 400, 800, or 1200 mm
- 10 -- Baseline length with arbitrary offset subtracted
- 11 -- Baseline component with mean subtracted (transverse and vertical)
- 12 -- Plot number (Same as page number)

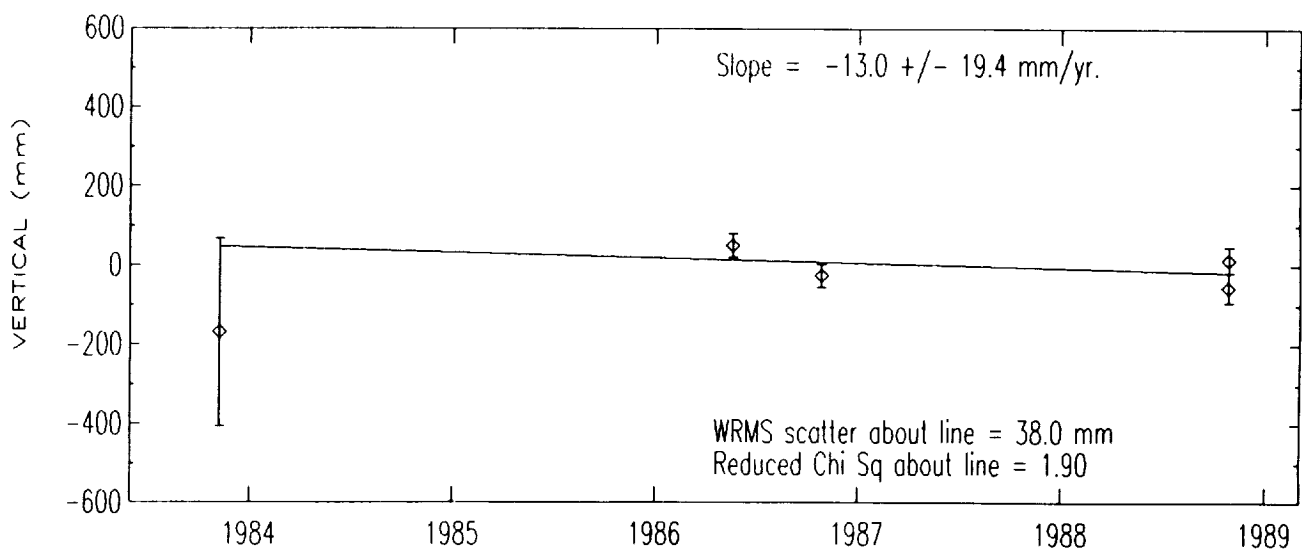
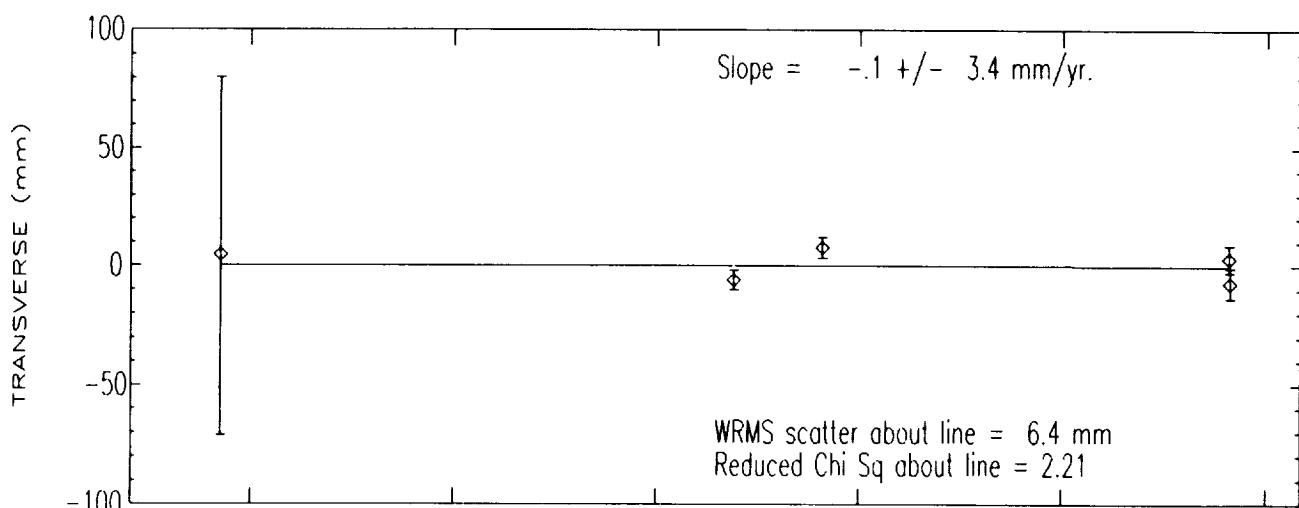
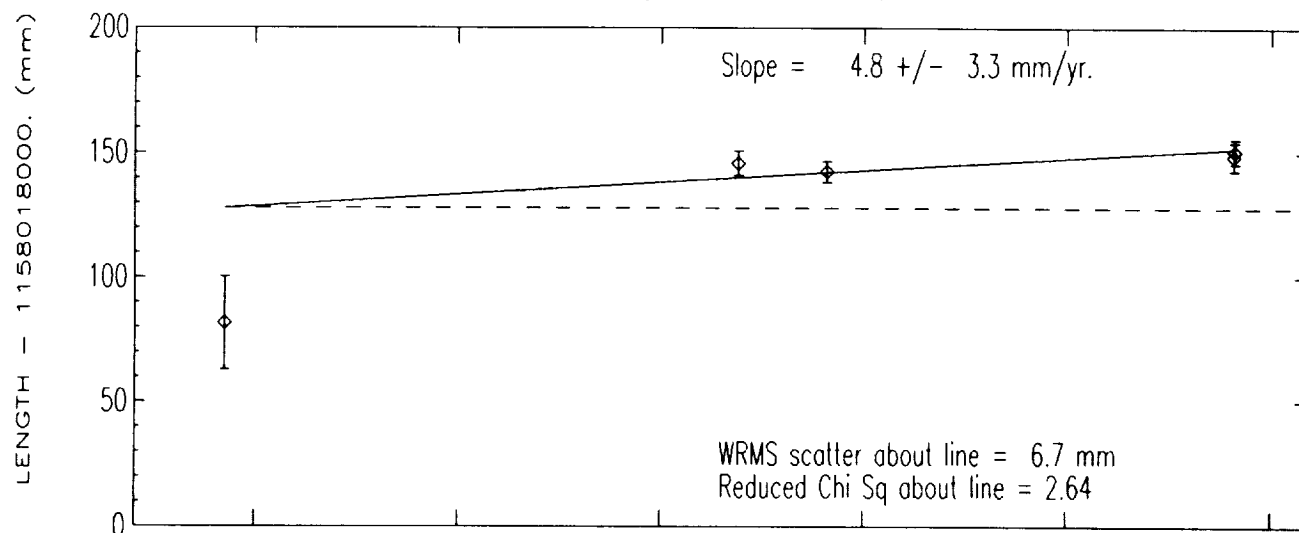
Tables 7.1 through 7.271 include information for those baselines not meeting the above criteria for plotting. The formal errors are one-sigma standard statistical errors. The transverse and vertical components are explicitly included so that the user may make comparisons between sessions.

The machine-readable version contains all the data plotted and tabulated in section 7.

BLKBUTTE TO HRAS 085

(Length = 1158 km)

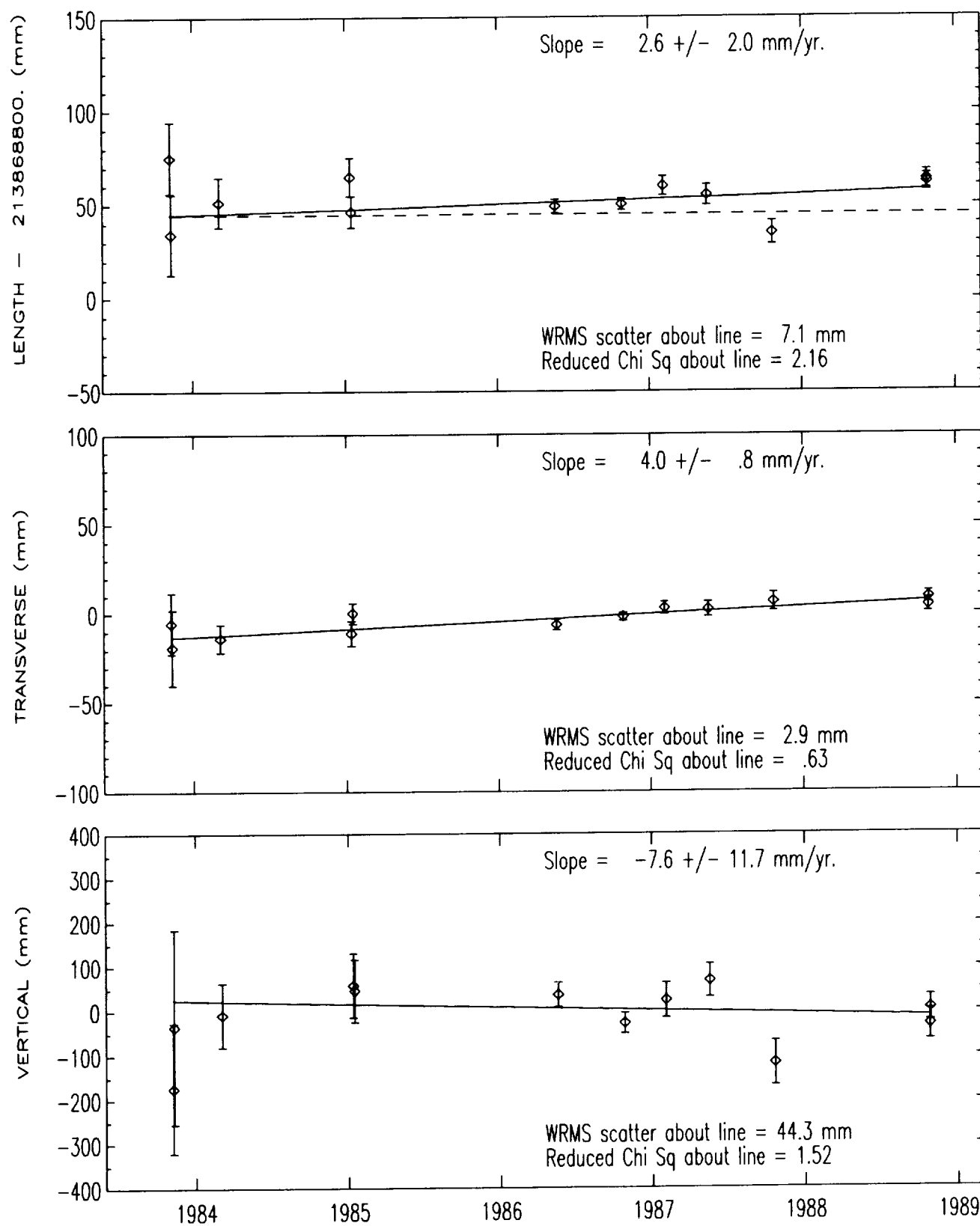
5 Observations



BLKBUTTE TO MOJAVE12

(Length = 213 km)

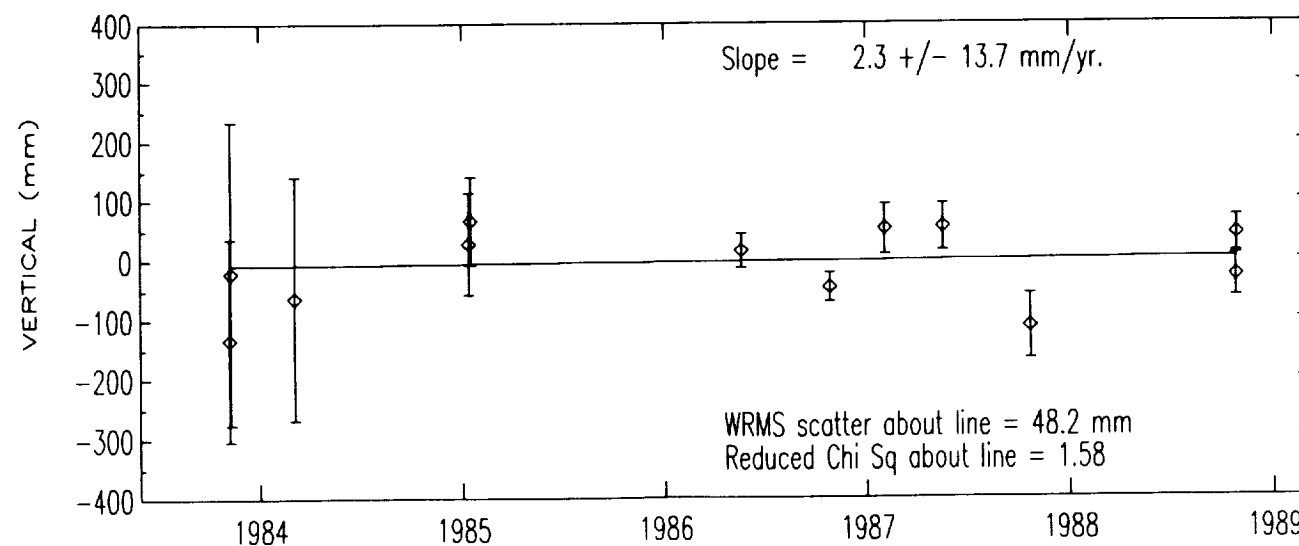
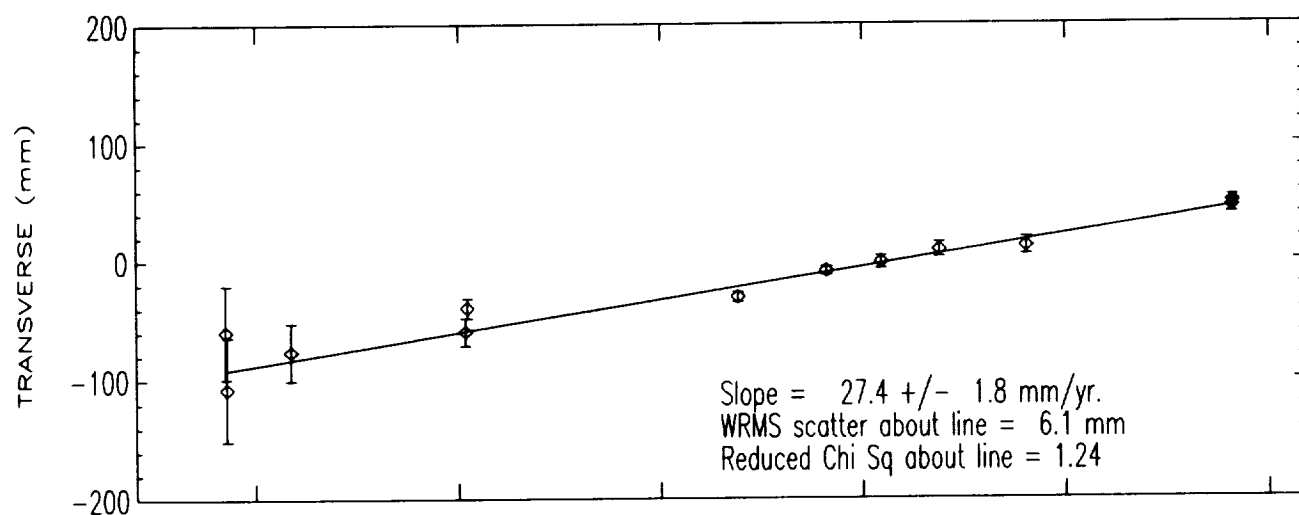
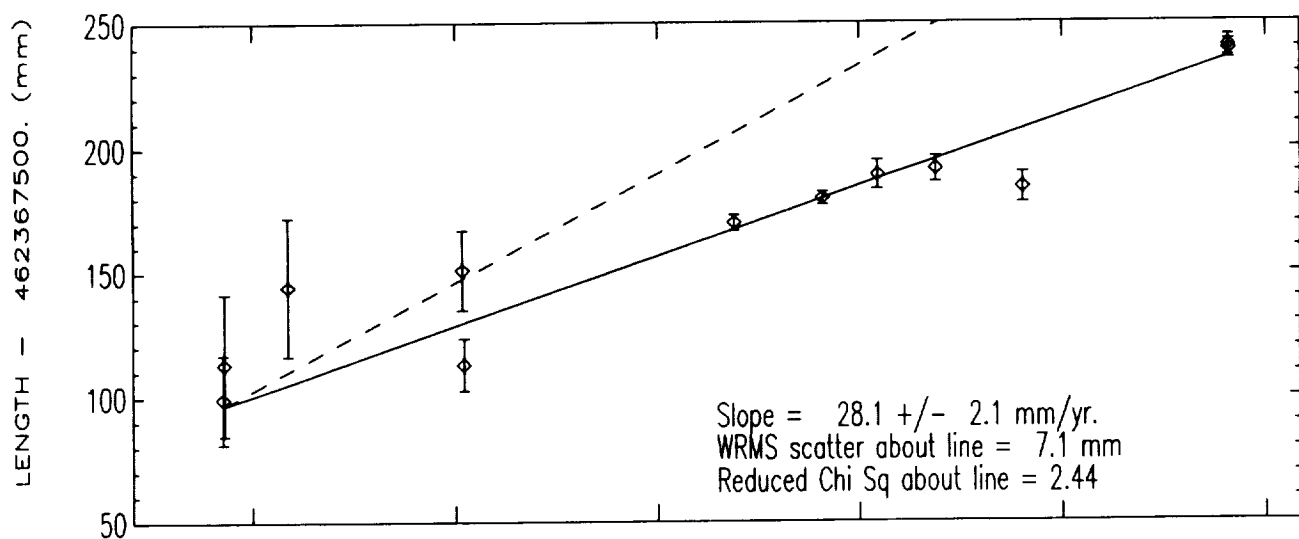
12 Observations



BLKBUTTE TO VNDNBERG

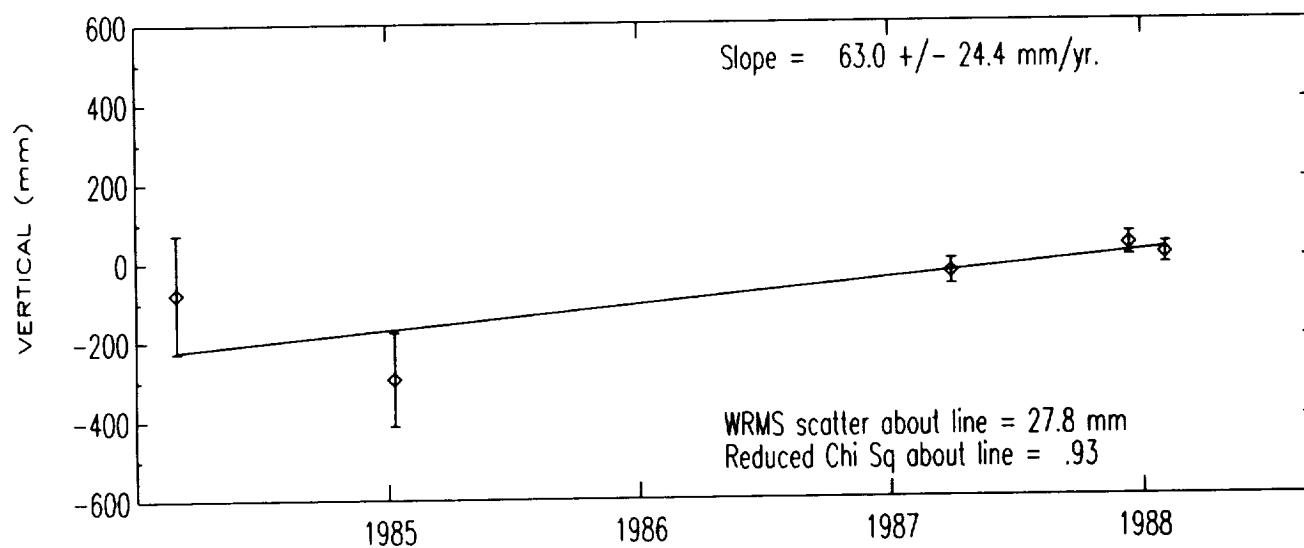
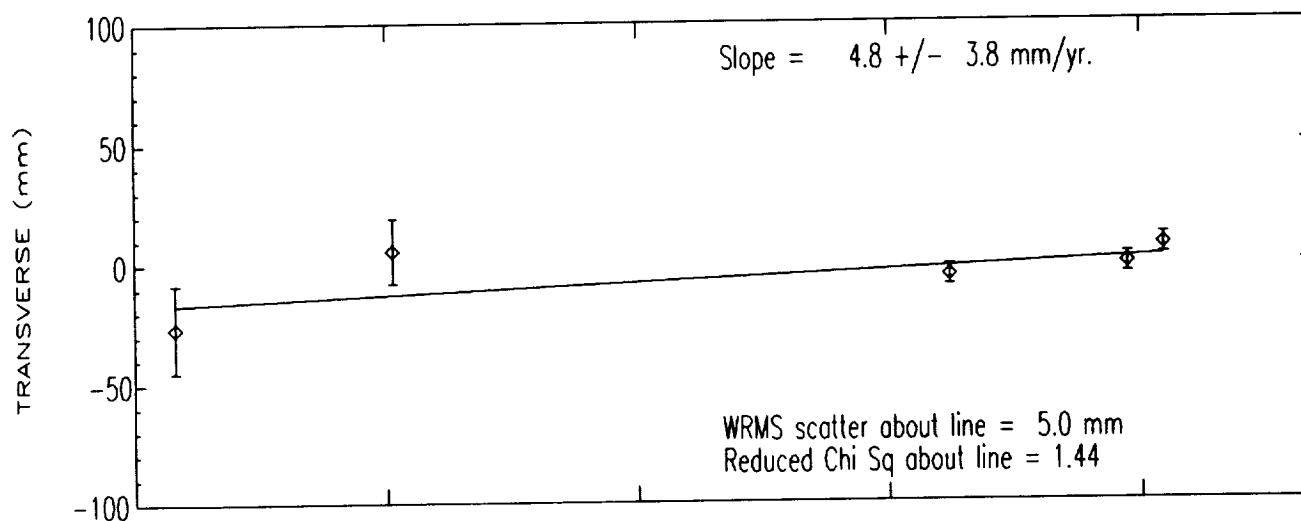
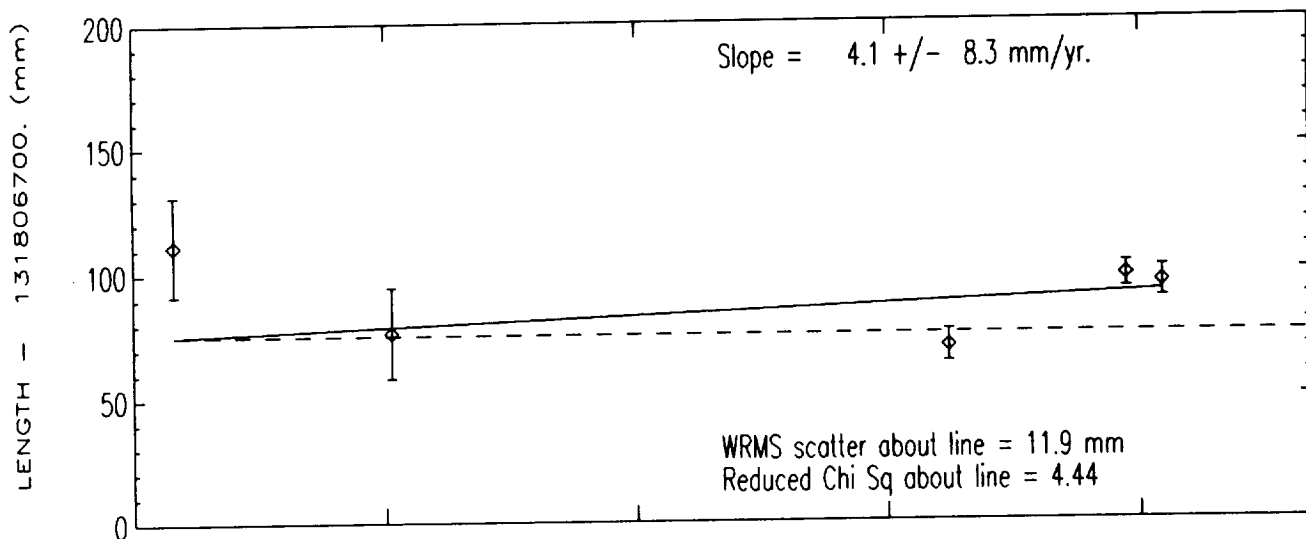
(Length = 462 km)

12 Observations



DEADMANL TO MOJAVE12 (Length = 131 km)

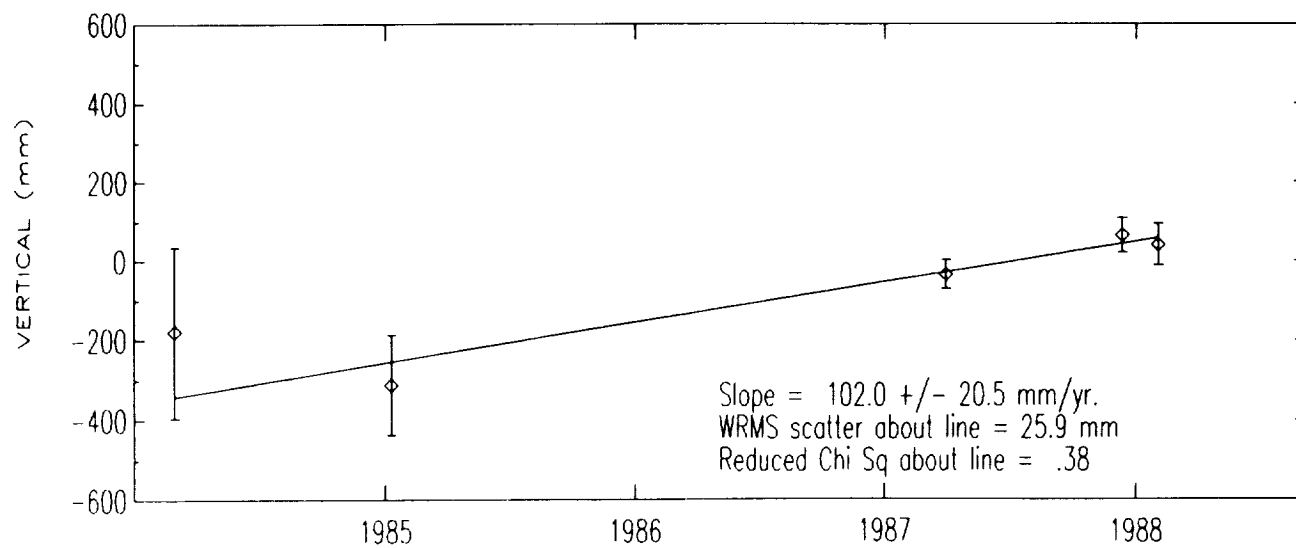
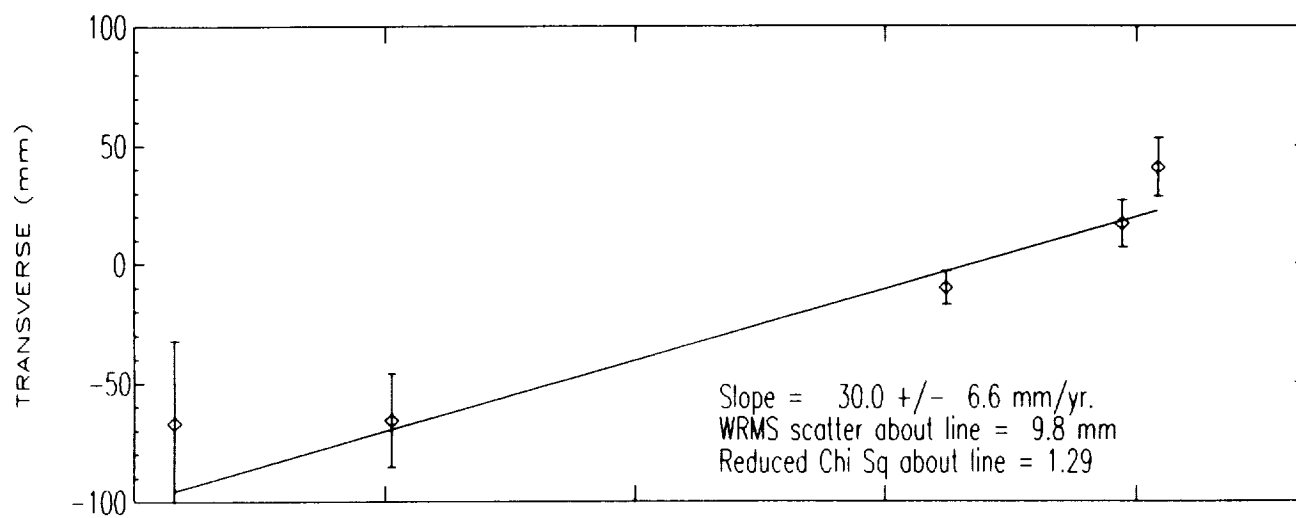
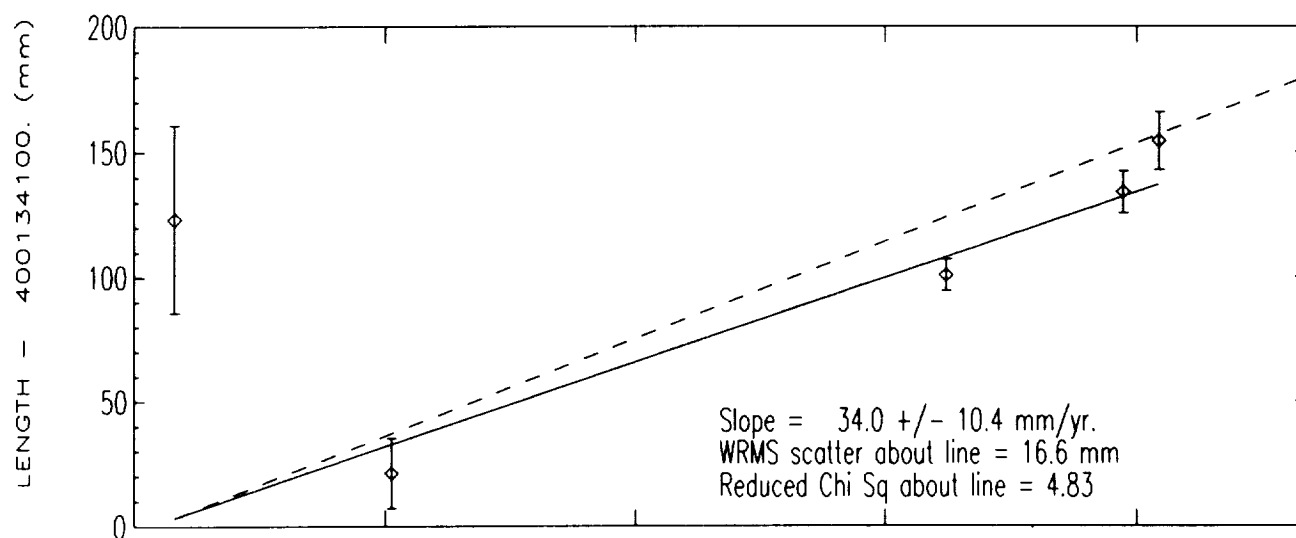
5 Observations



DEADMANL TO VNDNBERG

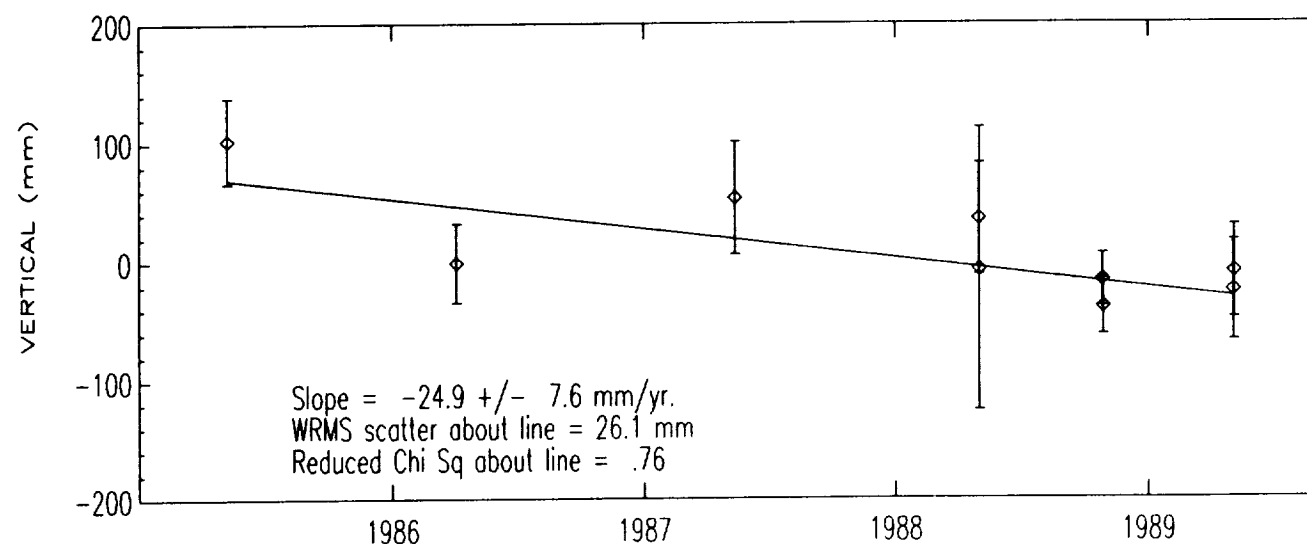
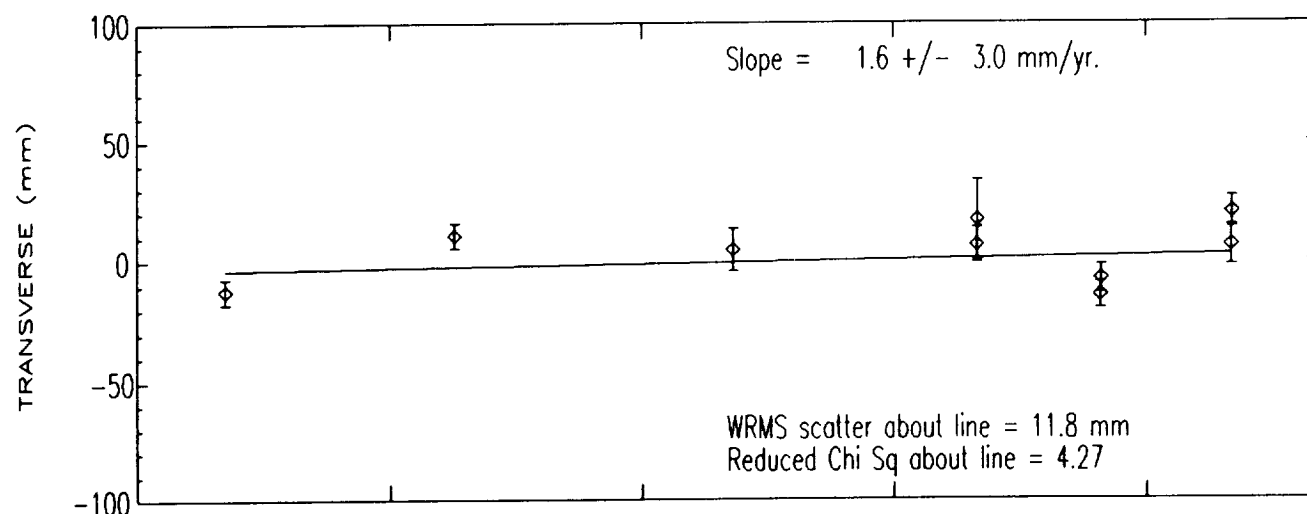
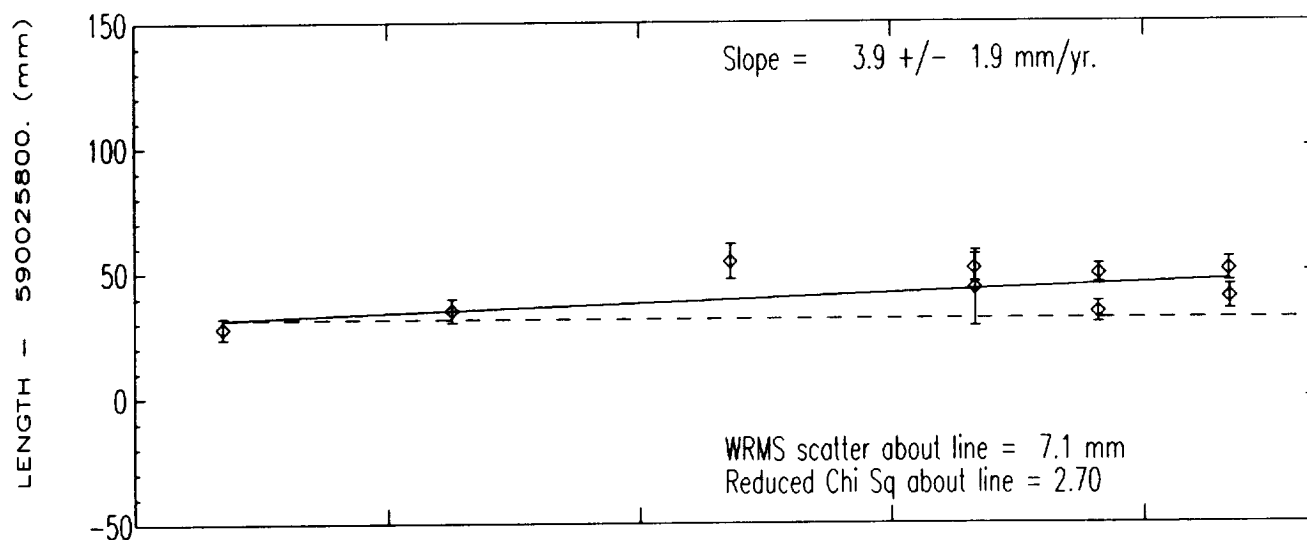
(Length = 400 km)

5 Observations



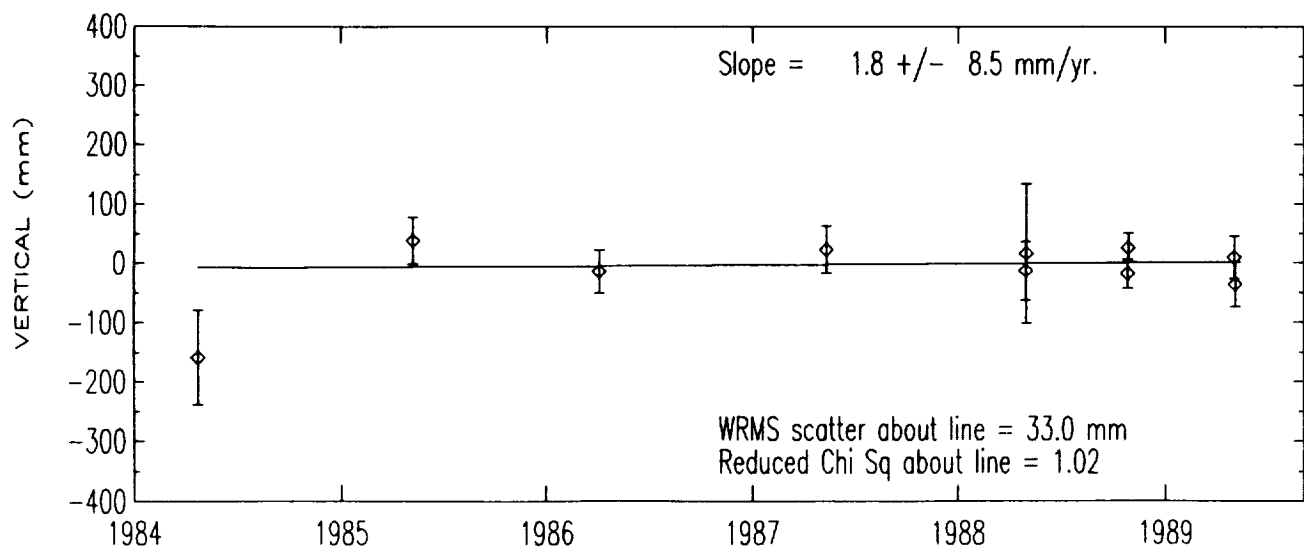
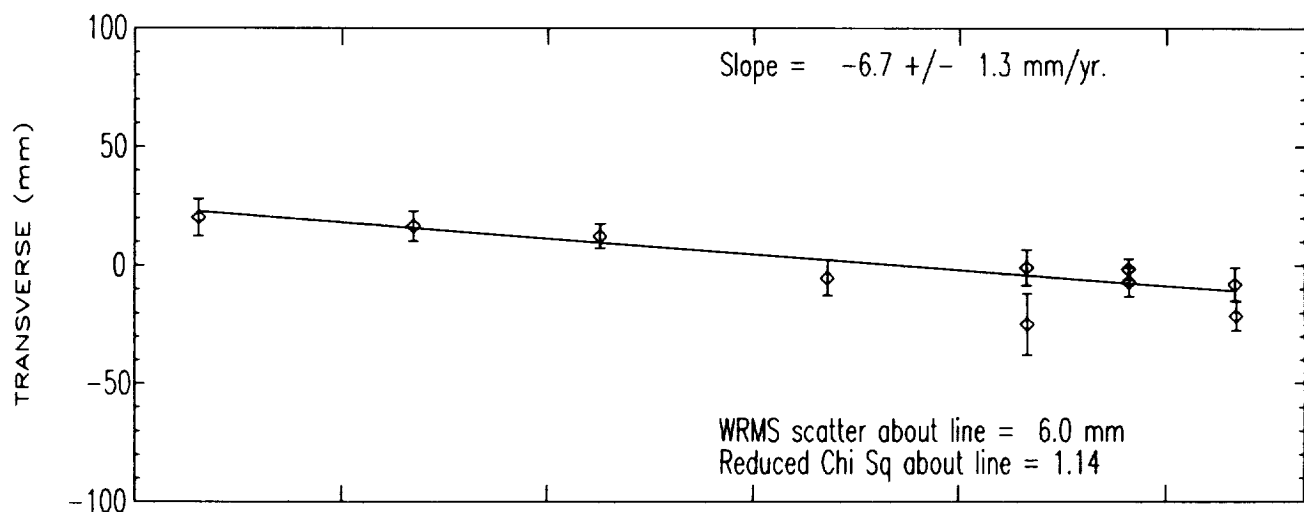
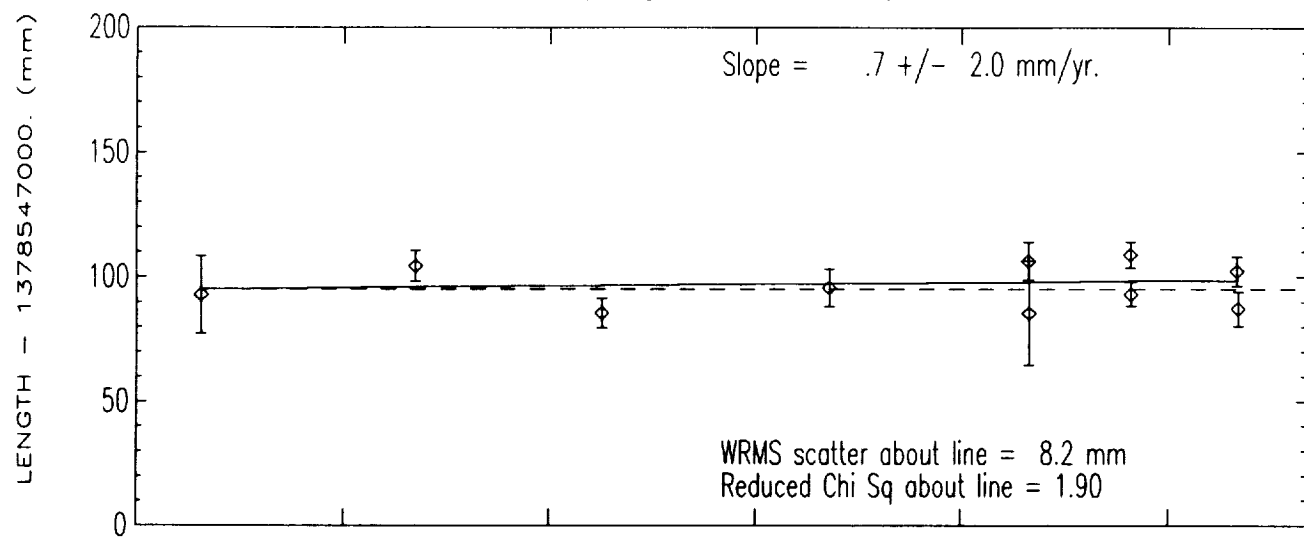
ELY TO HATCREEK (Length = 590 km)

9 Observations

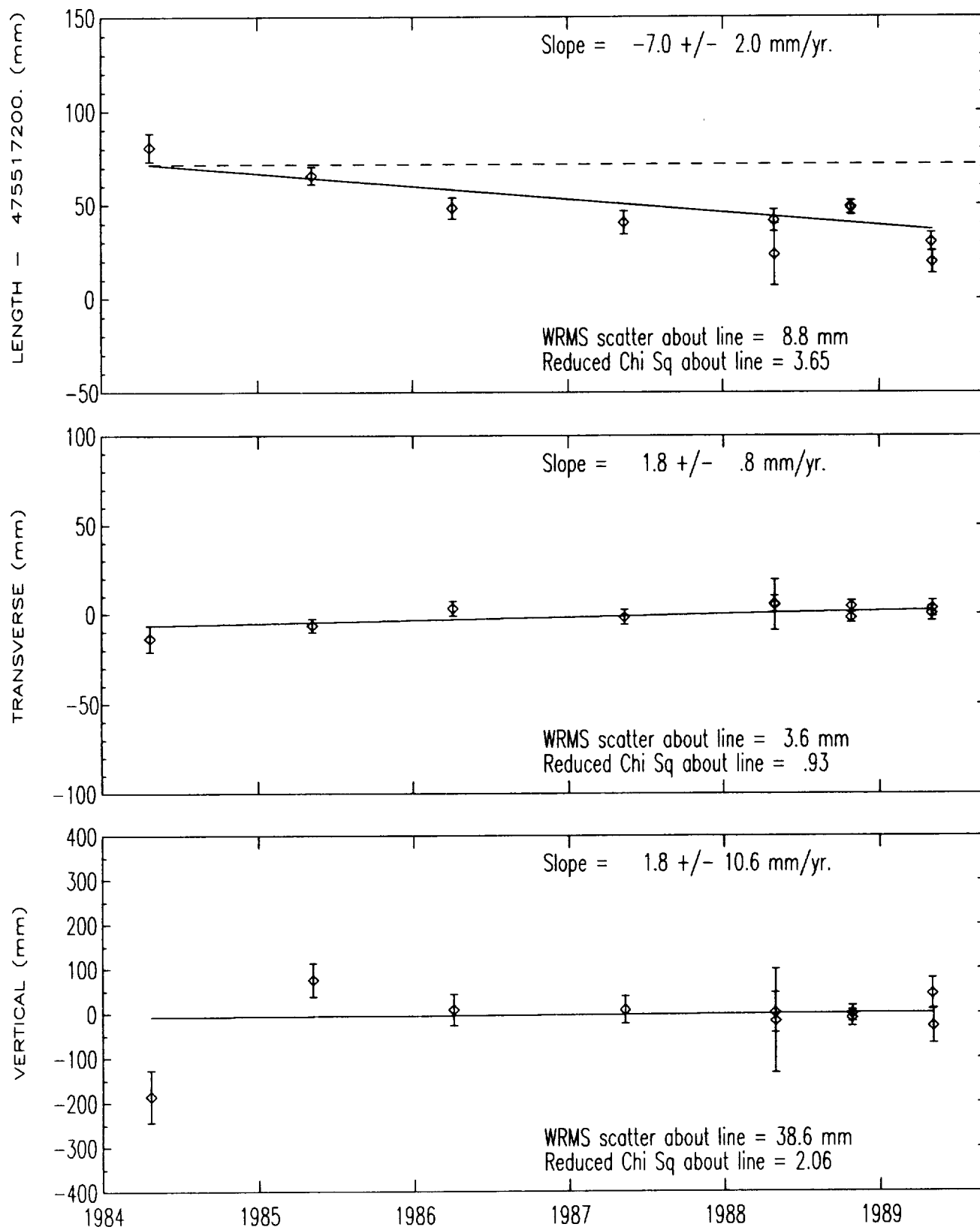


ELY TO HRAS 085 (Length = 1378 km)

10 Observations



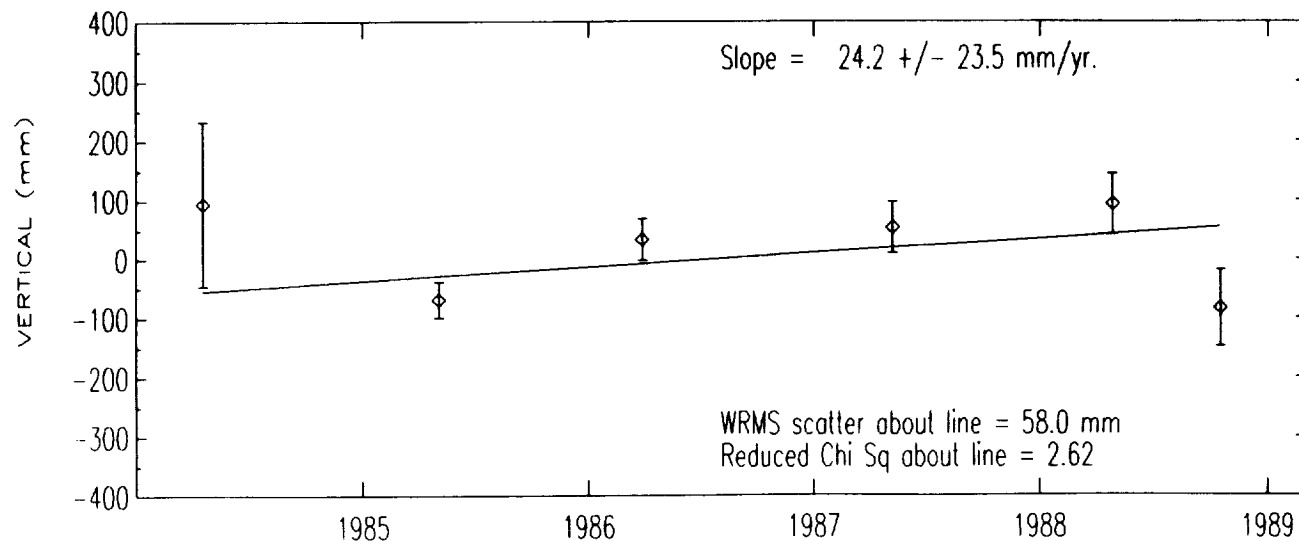
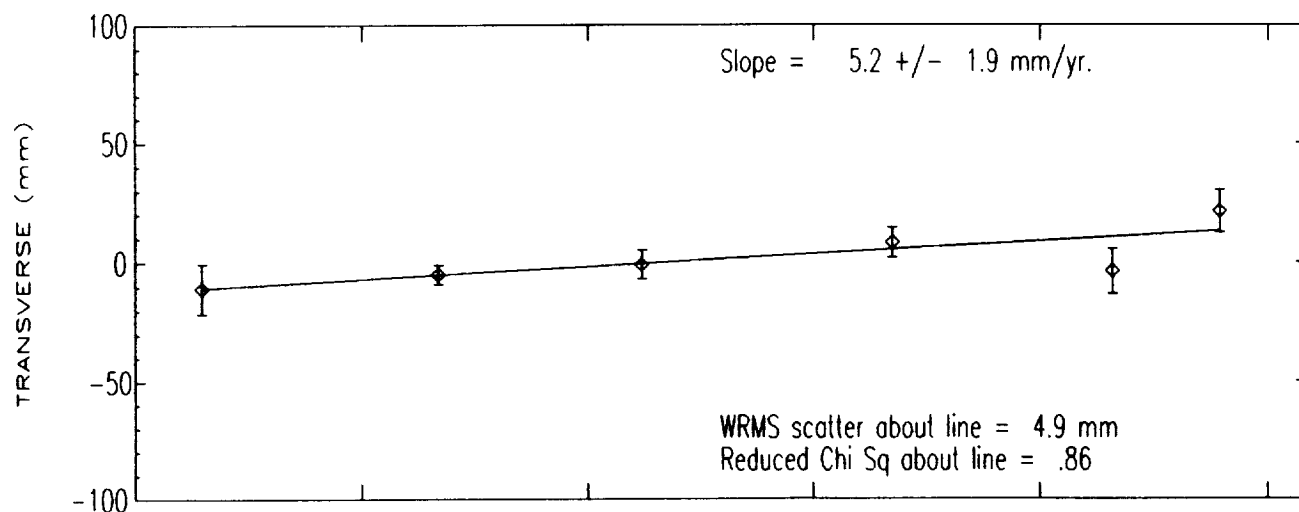
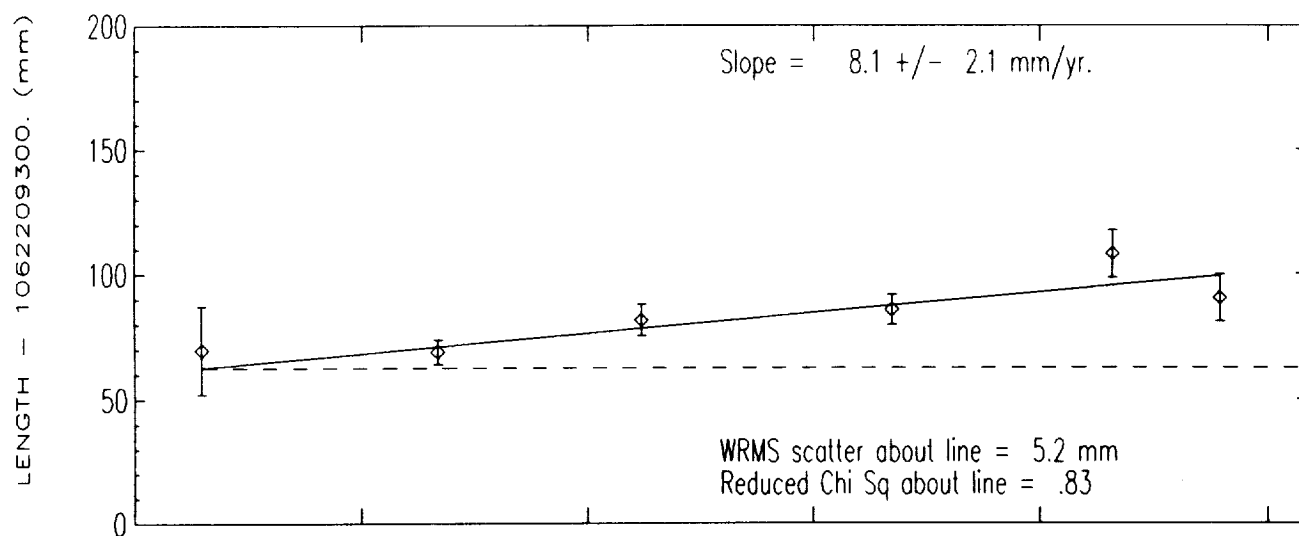
ELY TO MOJAVE12 (Length = 475 km) 10 Observations



FLAGSTAF TO HATCREEK

(Length = 1062 km)

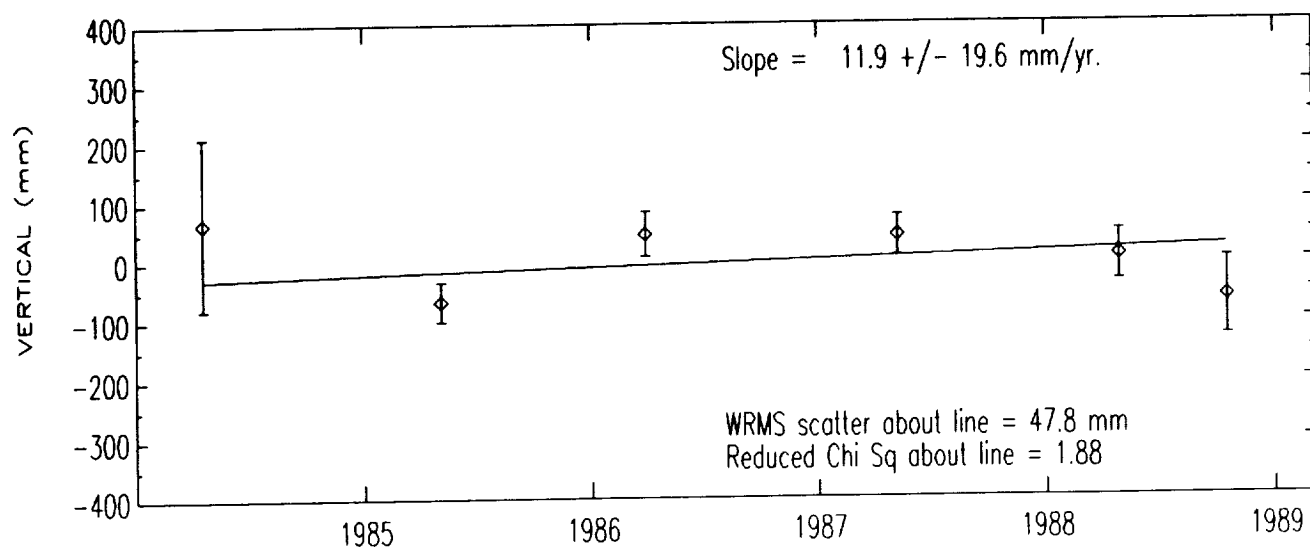
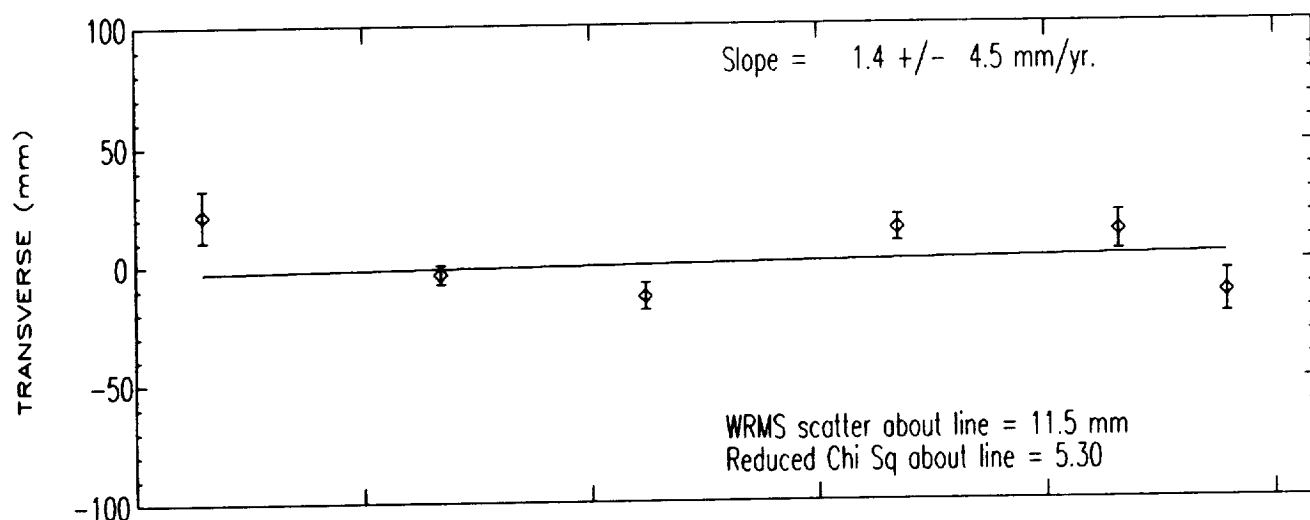
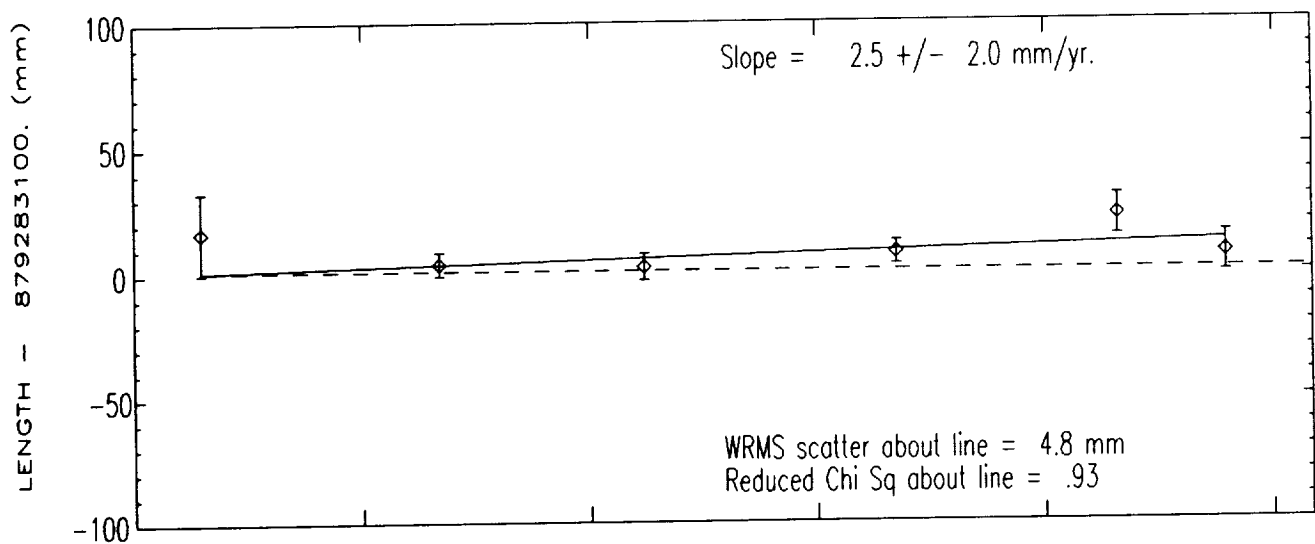
6 Observations



FLAGSTAF TO HRAS 085

(Length = 879 km)

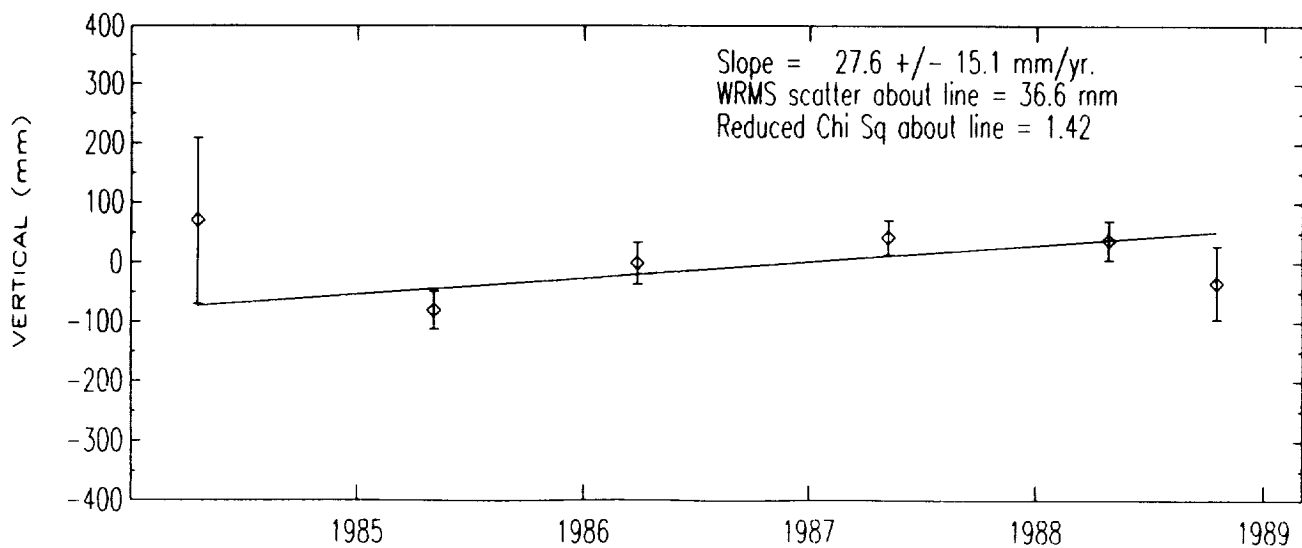
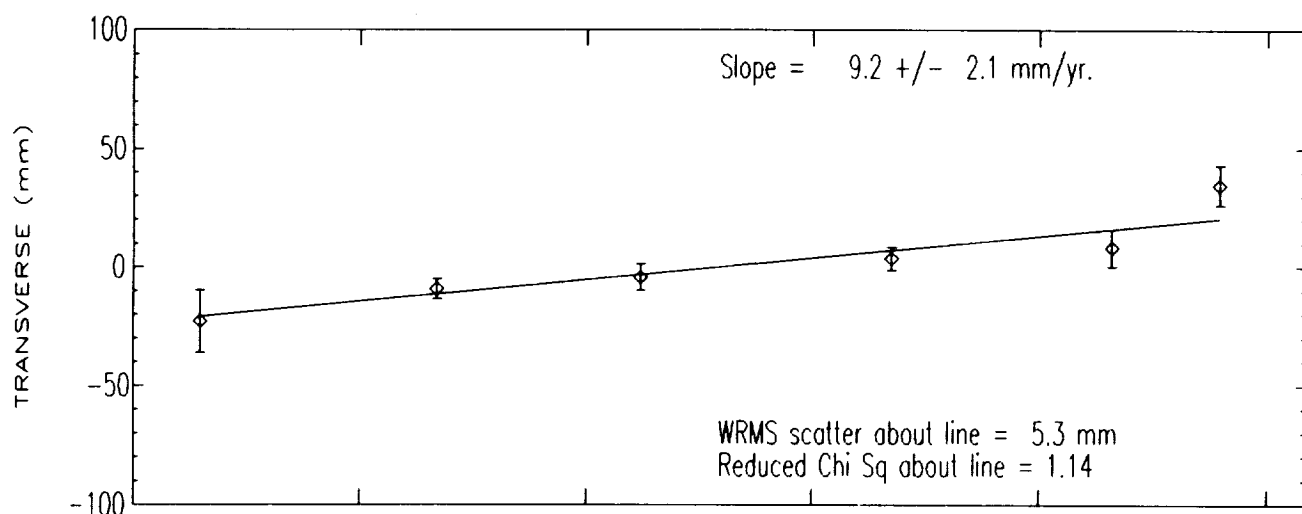
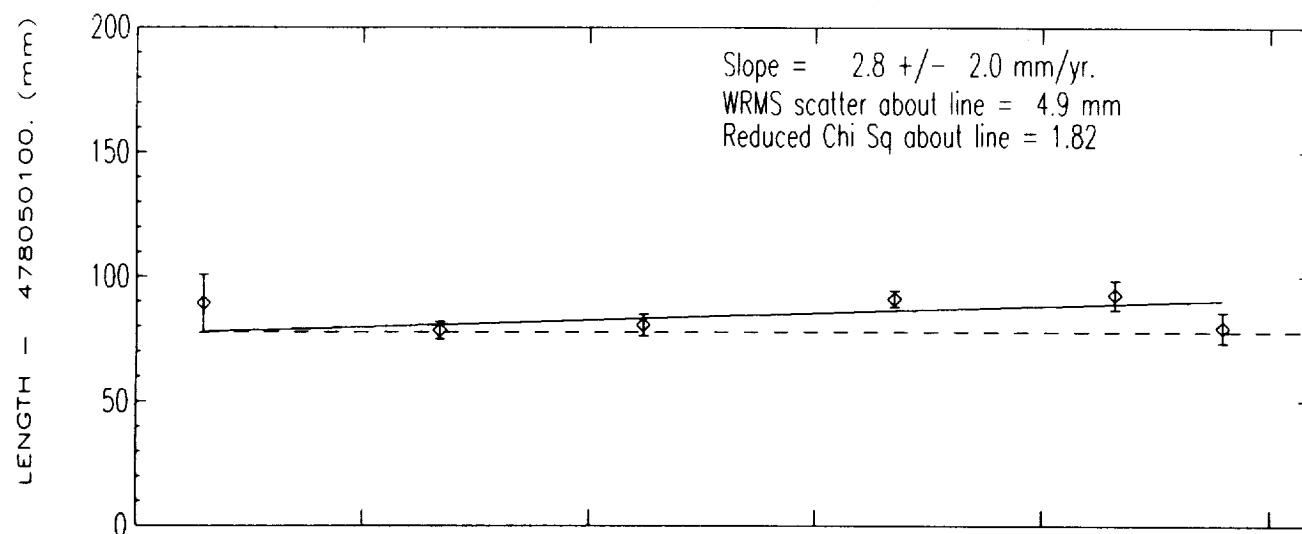
6 Observations



FLAGSTAF TO MOJAVE12

(Length = 478 km)

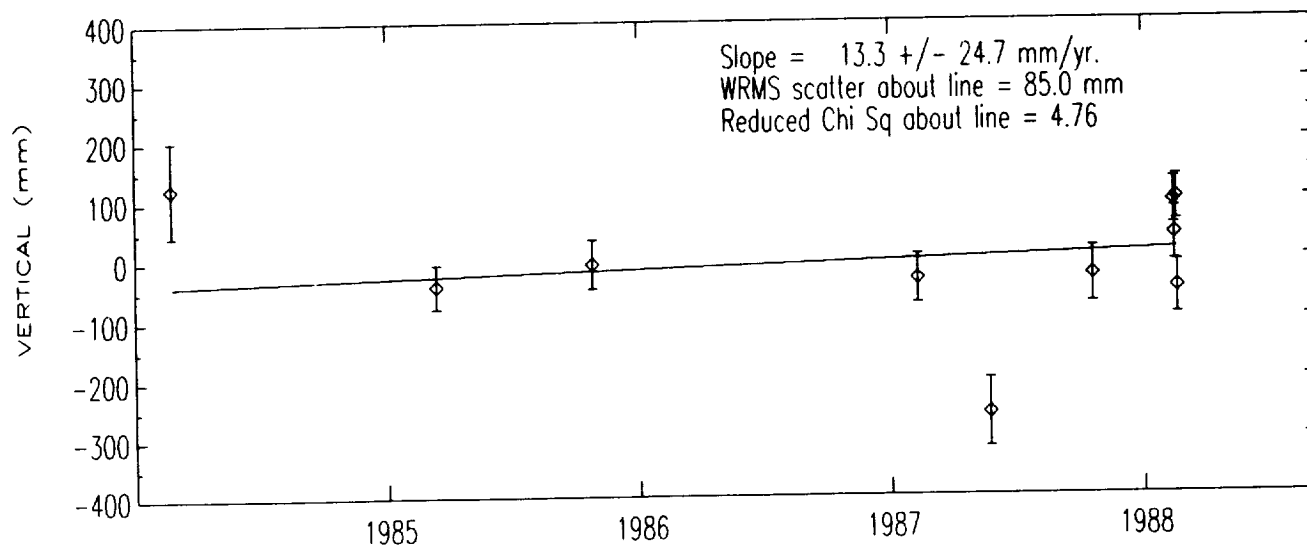
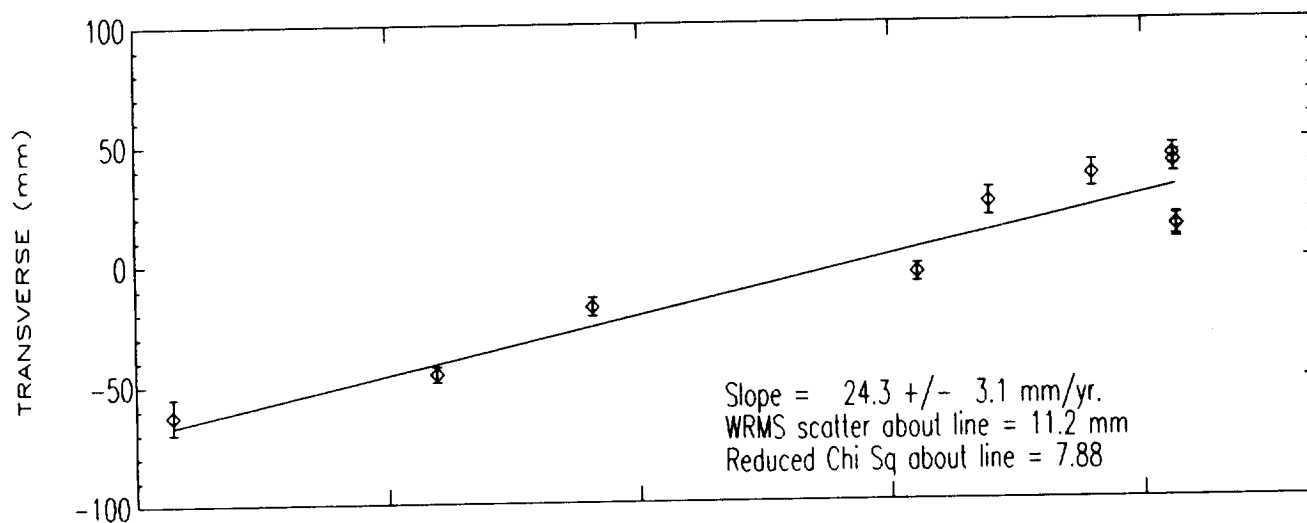
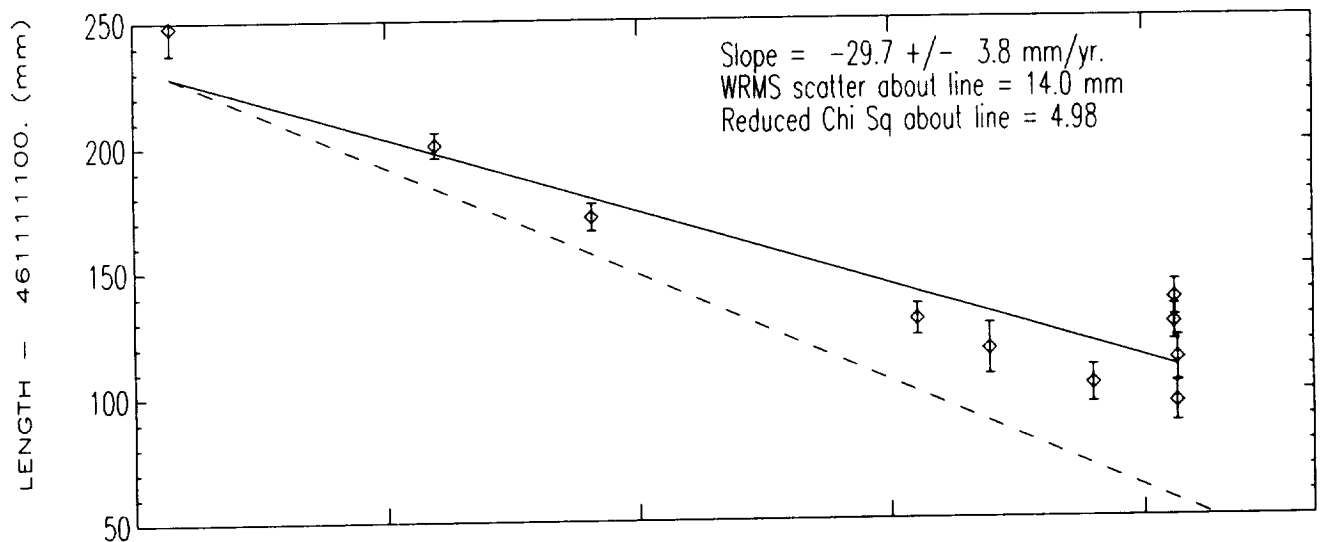
6 Observations



FORT ORD TO HATCREEK

(Length = 461 km)

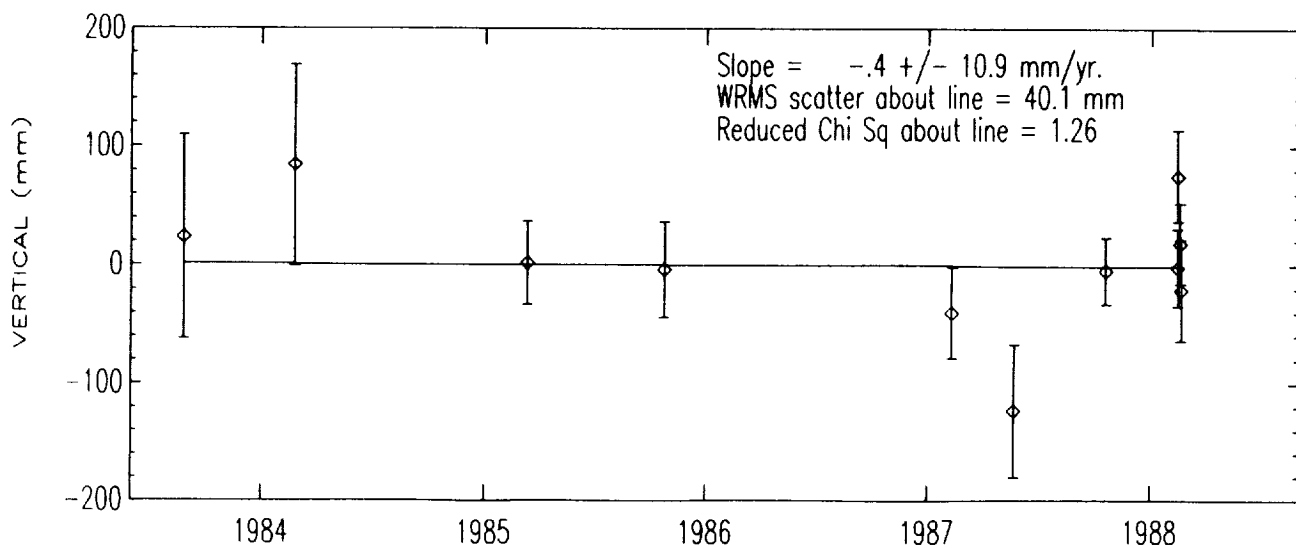
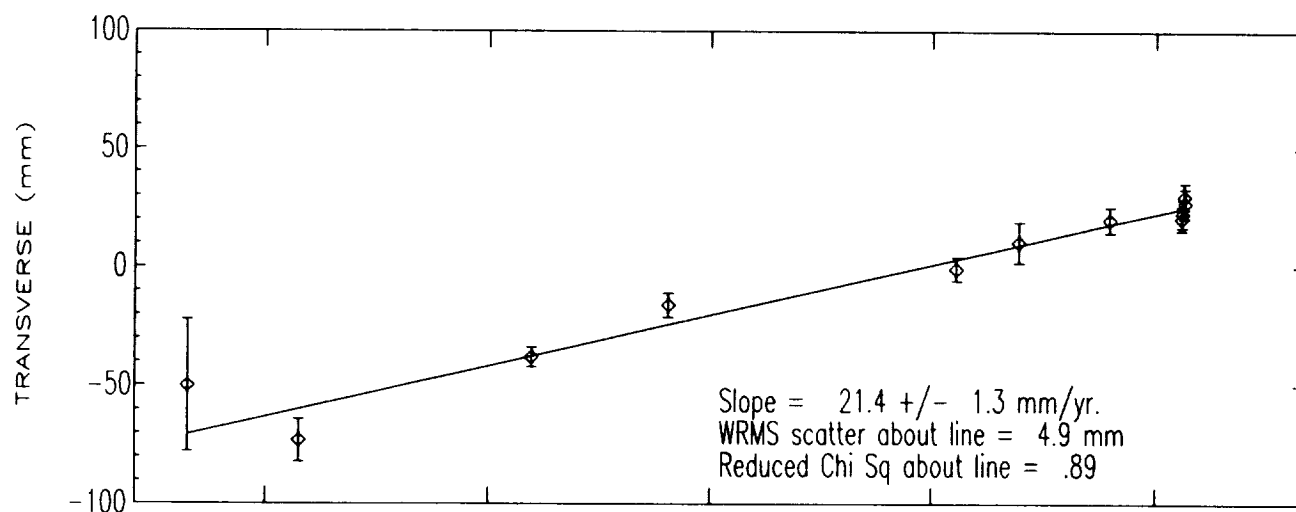
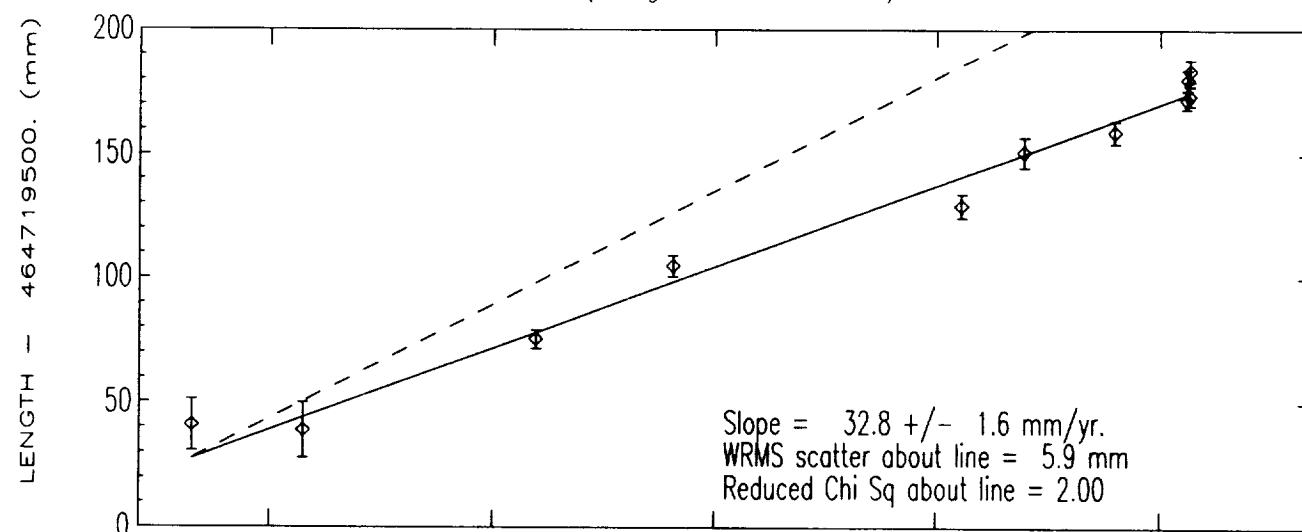
10 Observations



FORT ORD TO MOJAVE12

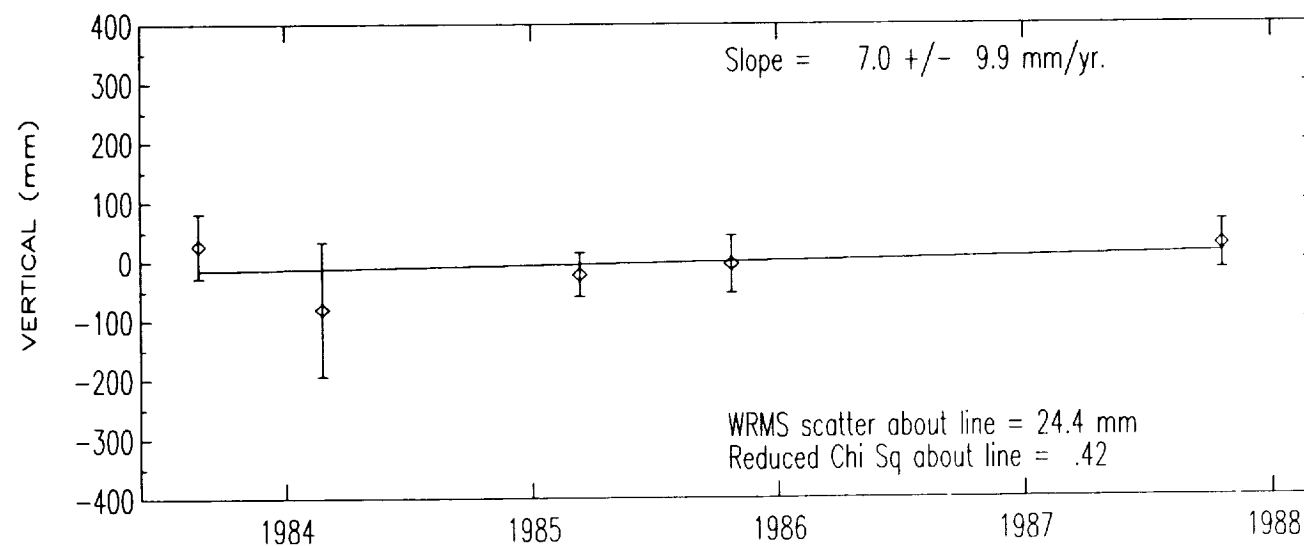
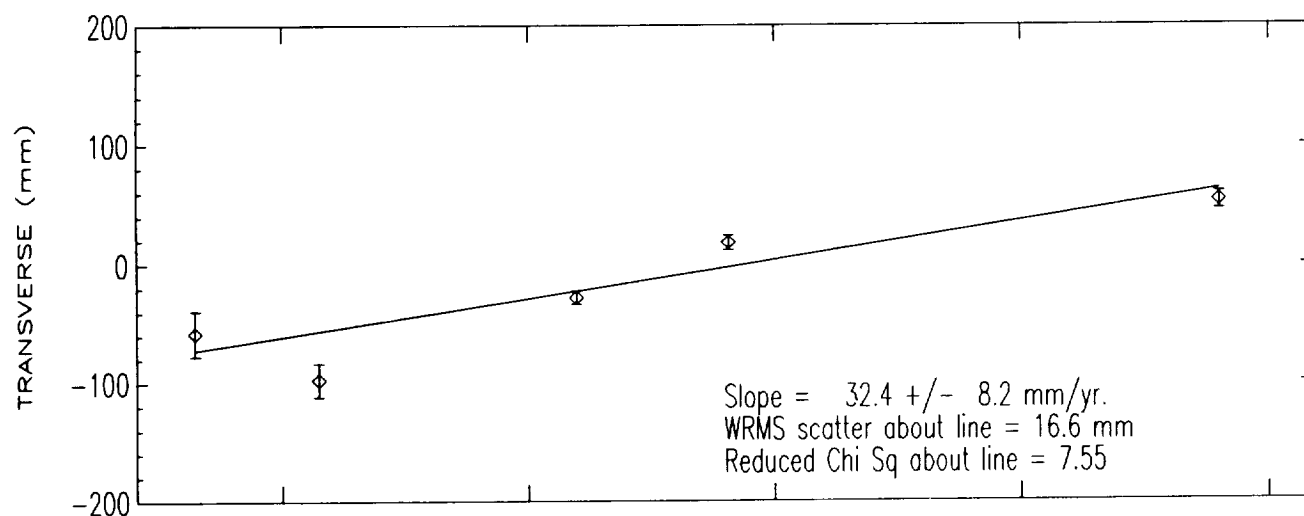
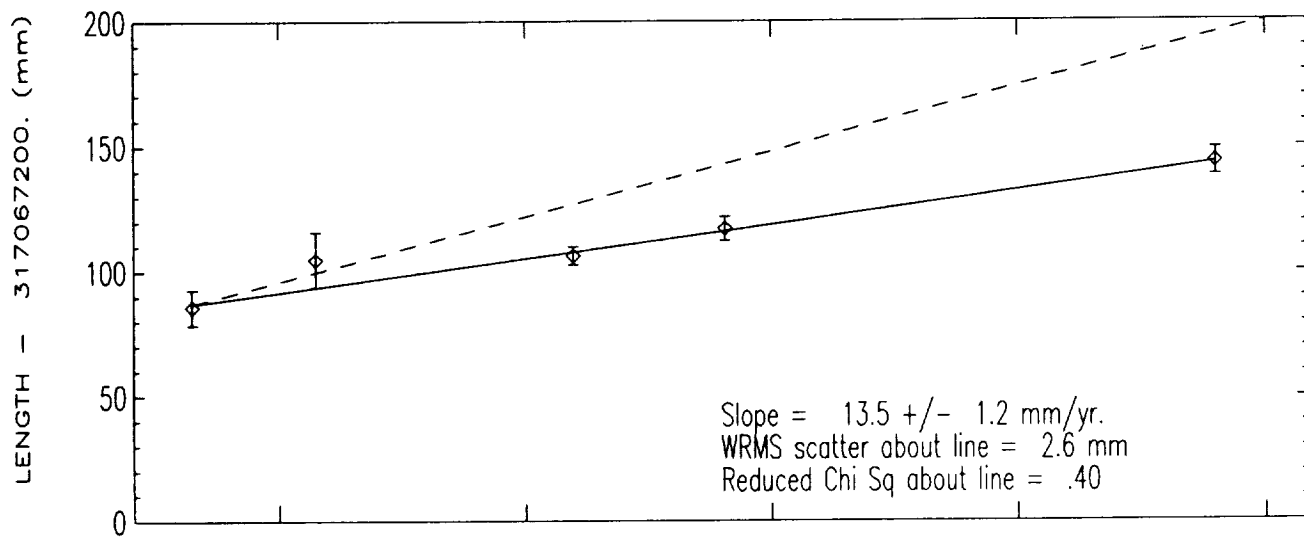
(Length = 464 km)

11 Observations



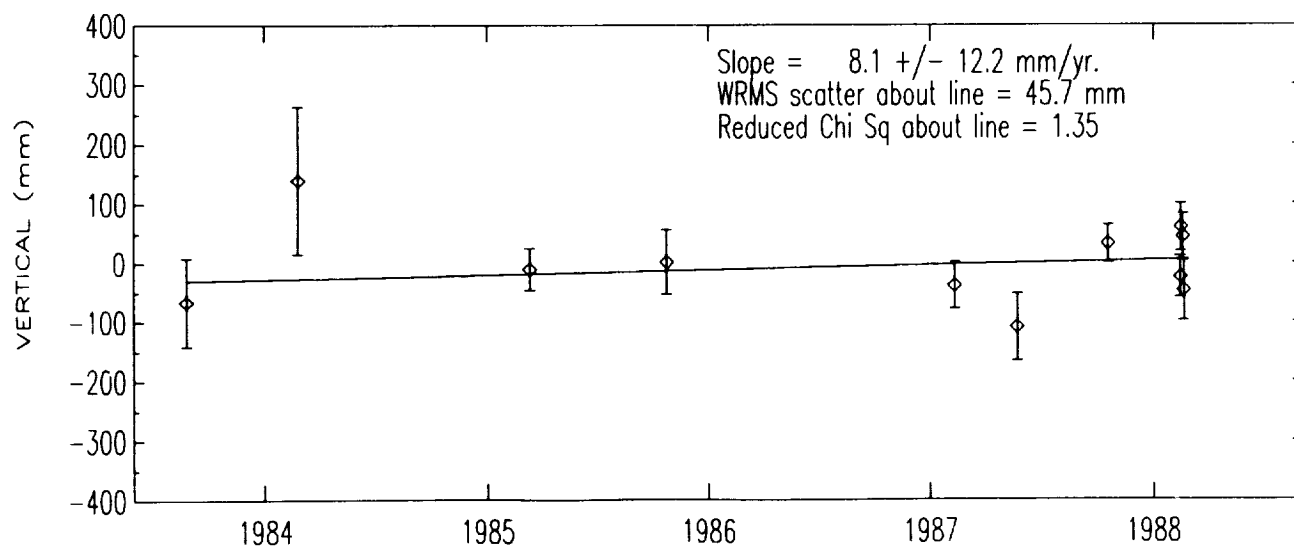
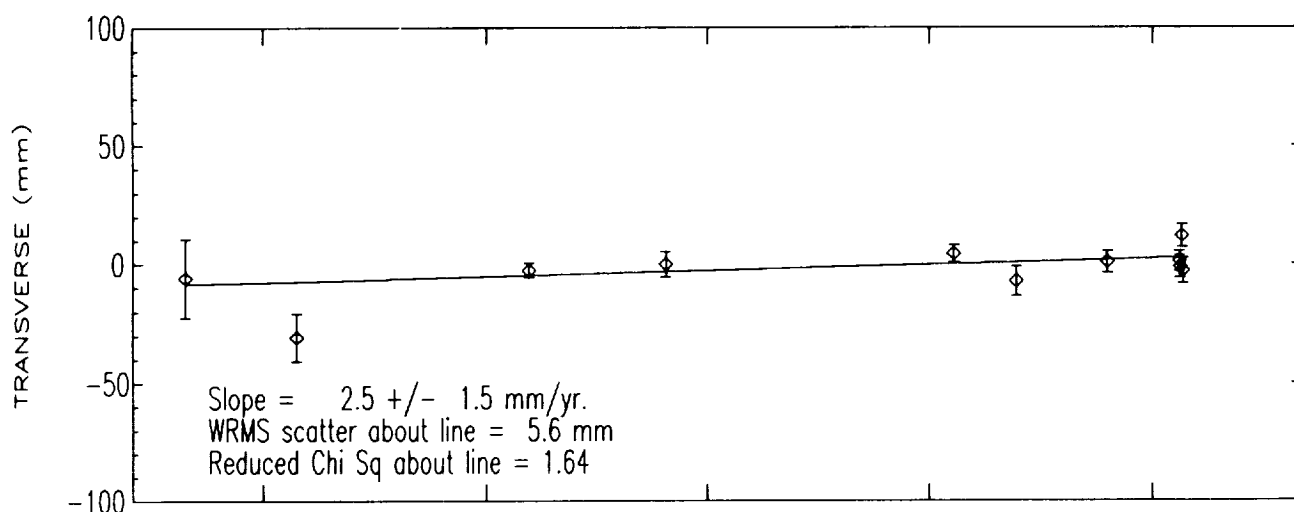
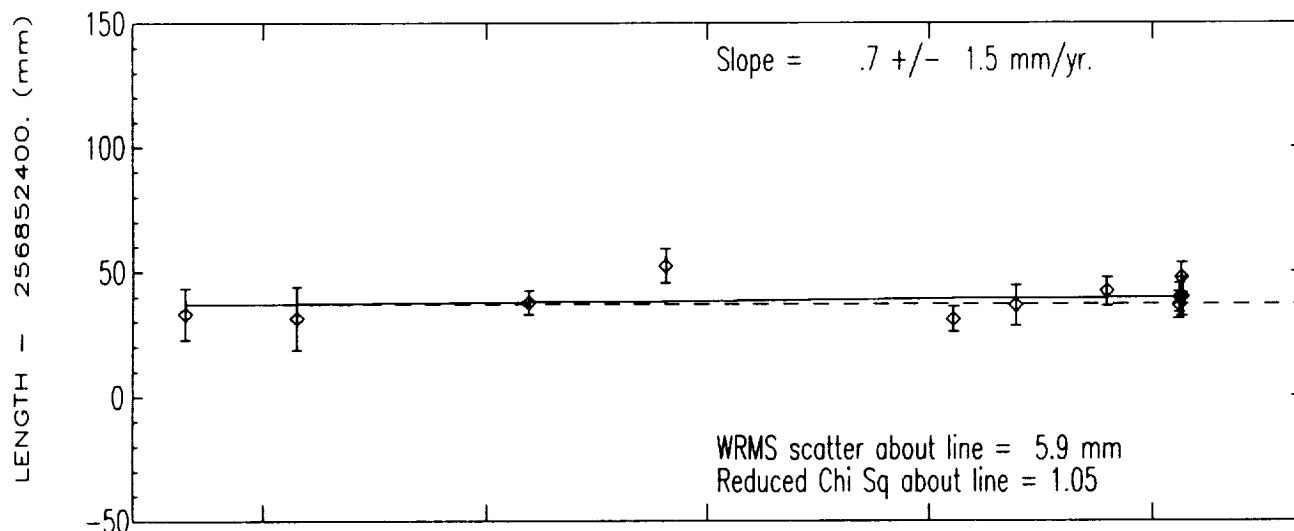
FORT ORD TO OVRO 130 (Length = 317 km)

5 Observations



FORT ORD TO VNDNBERG (Length = 256 km)

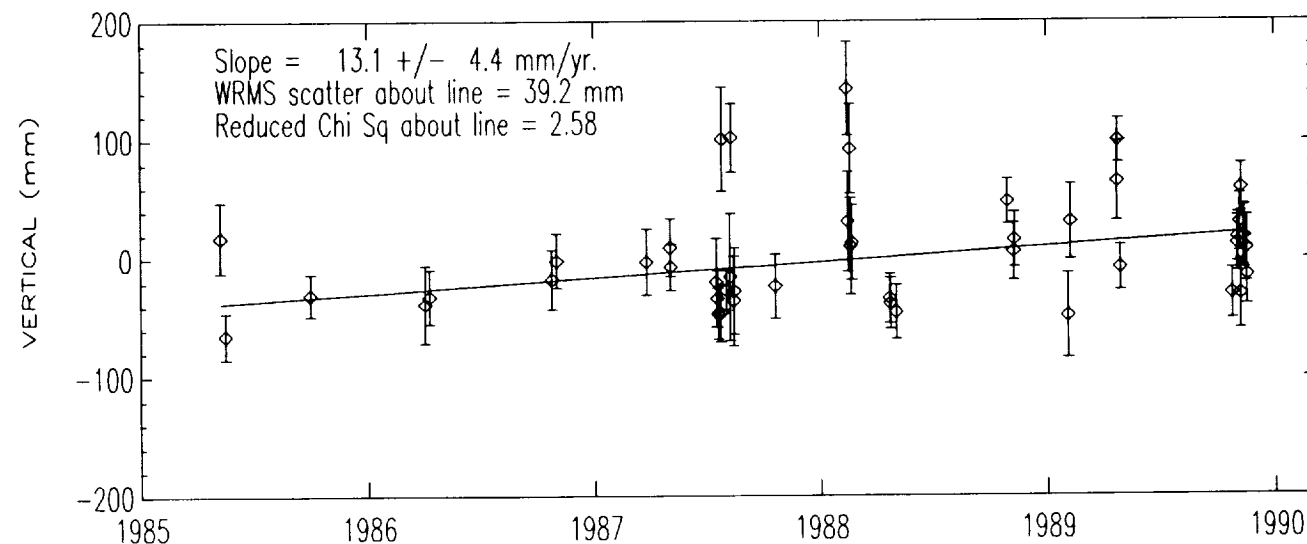
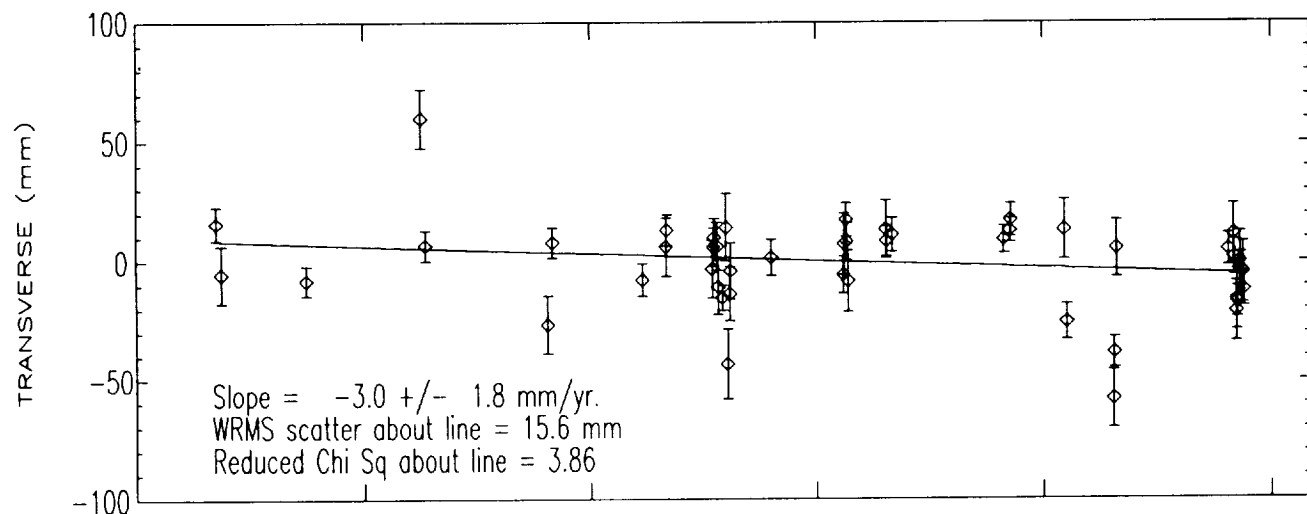
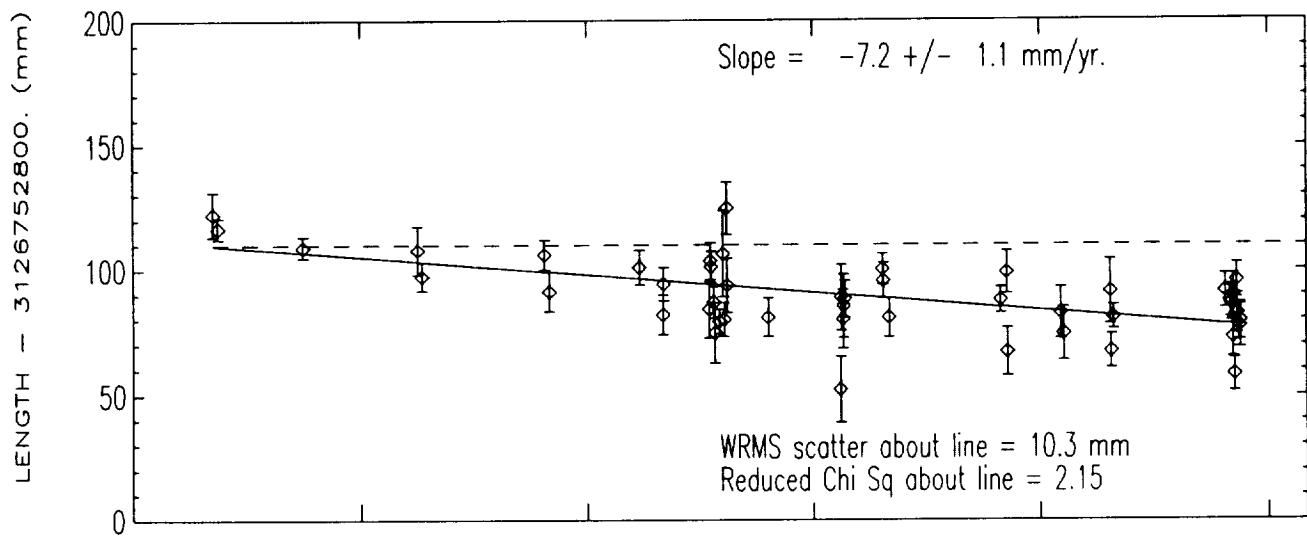
11 Observations



GILCREEK TO HATCREEK

(Length = 3126 km)

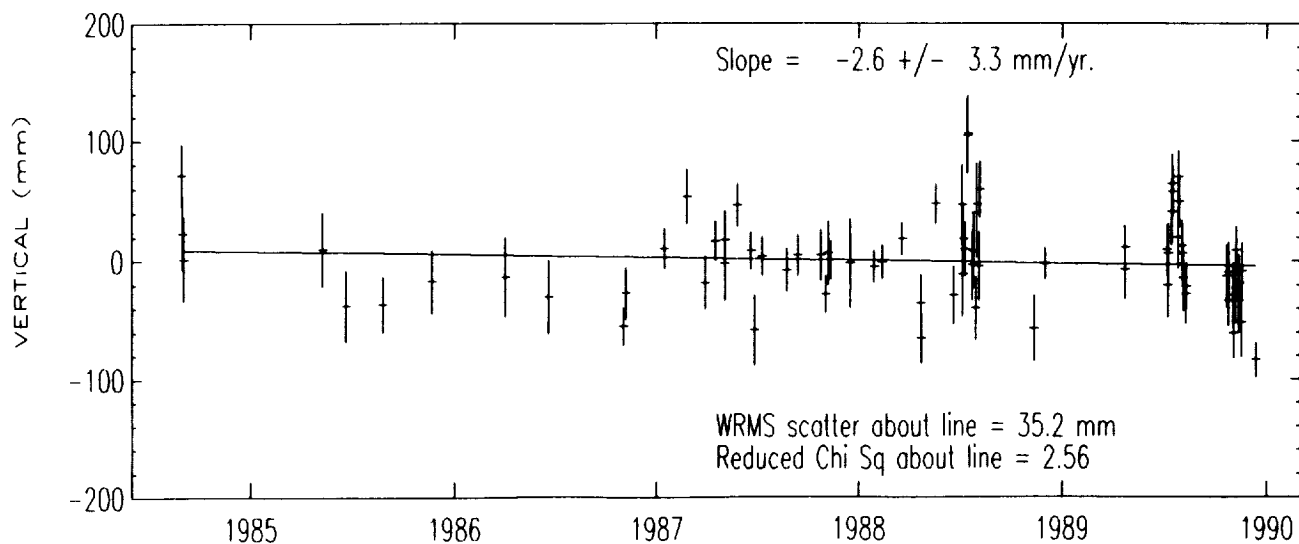
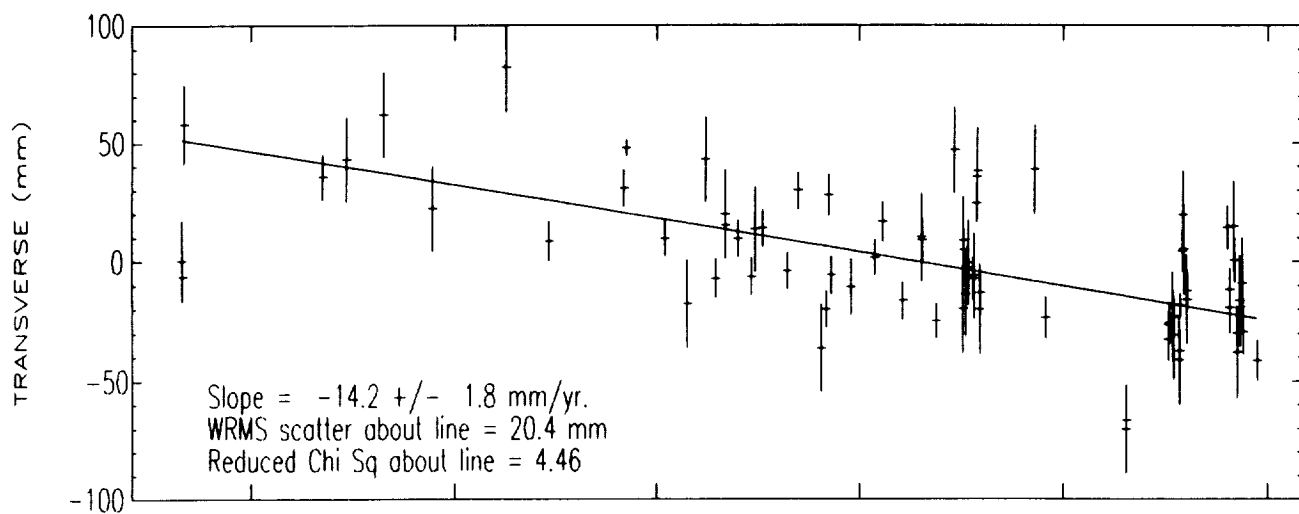
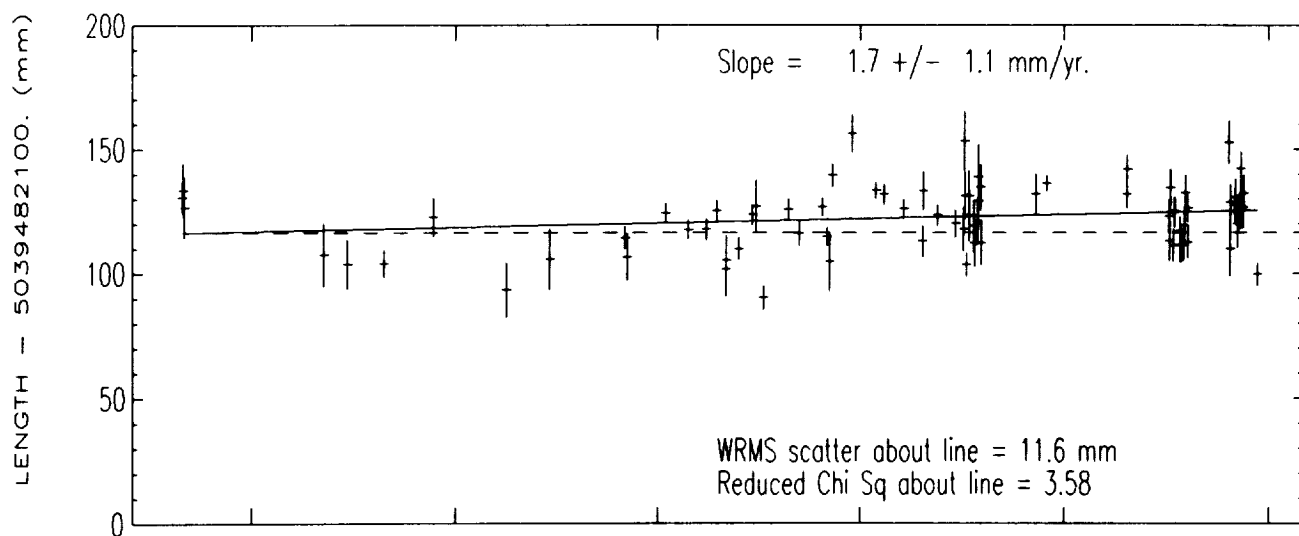
47 Observations



GILCREEK TO HAYSTACK

(Length = 5039 km)

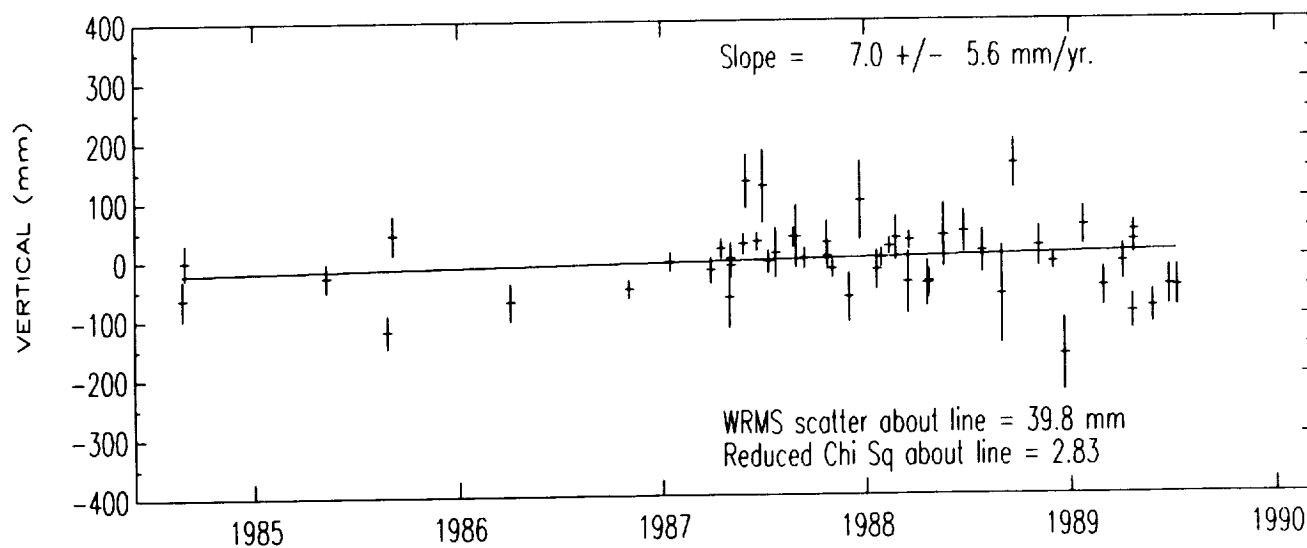
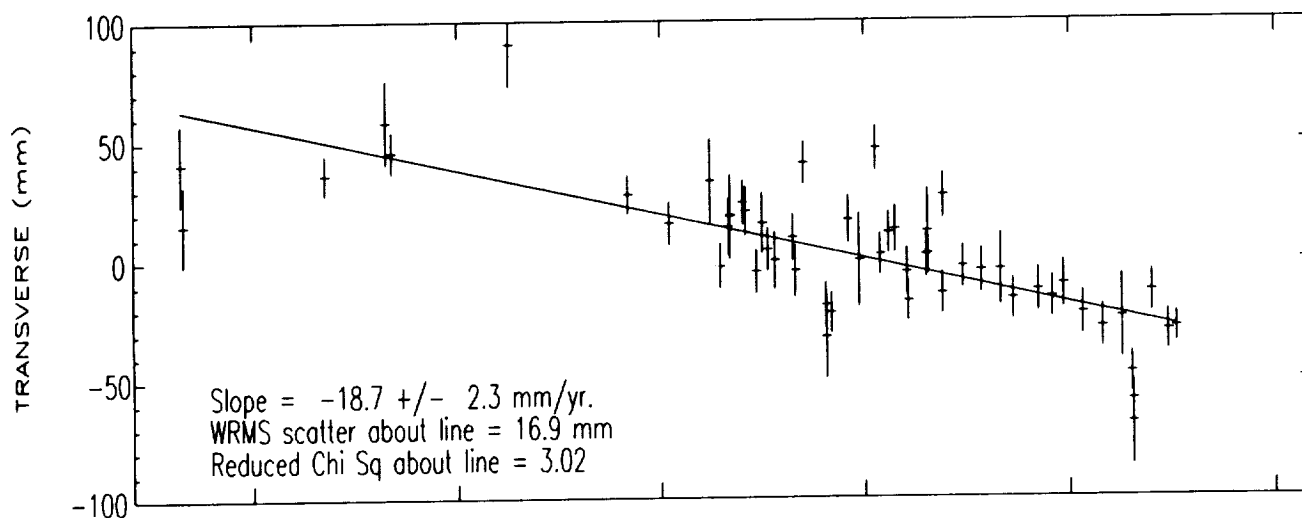
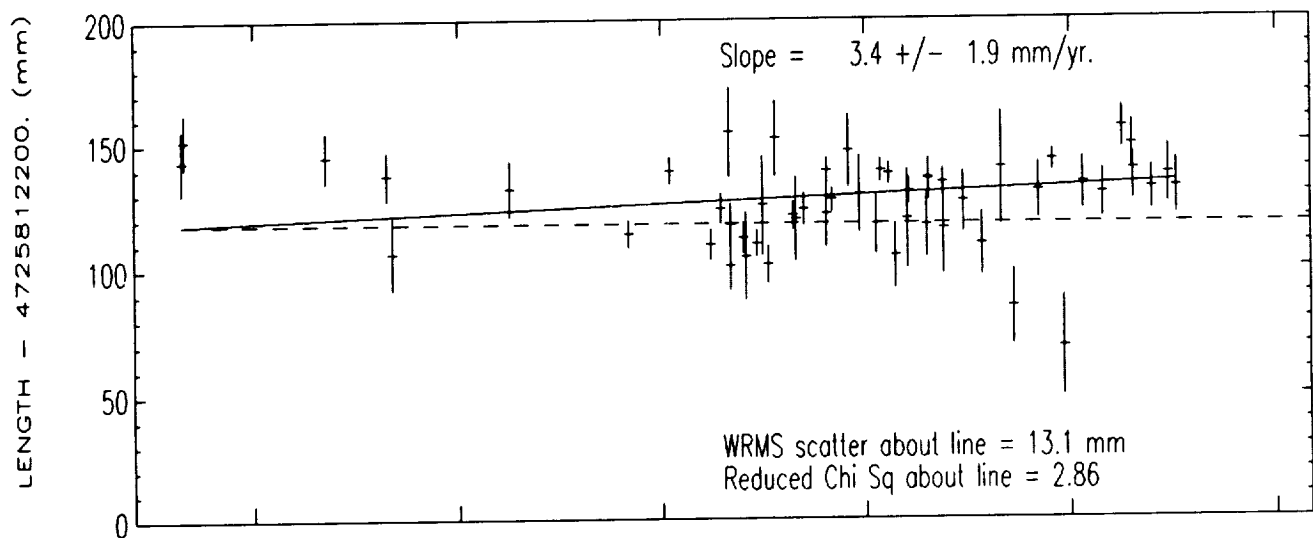
78 Observations



GILCREEK TO HRAS 085

(Length = 4725 km)

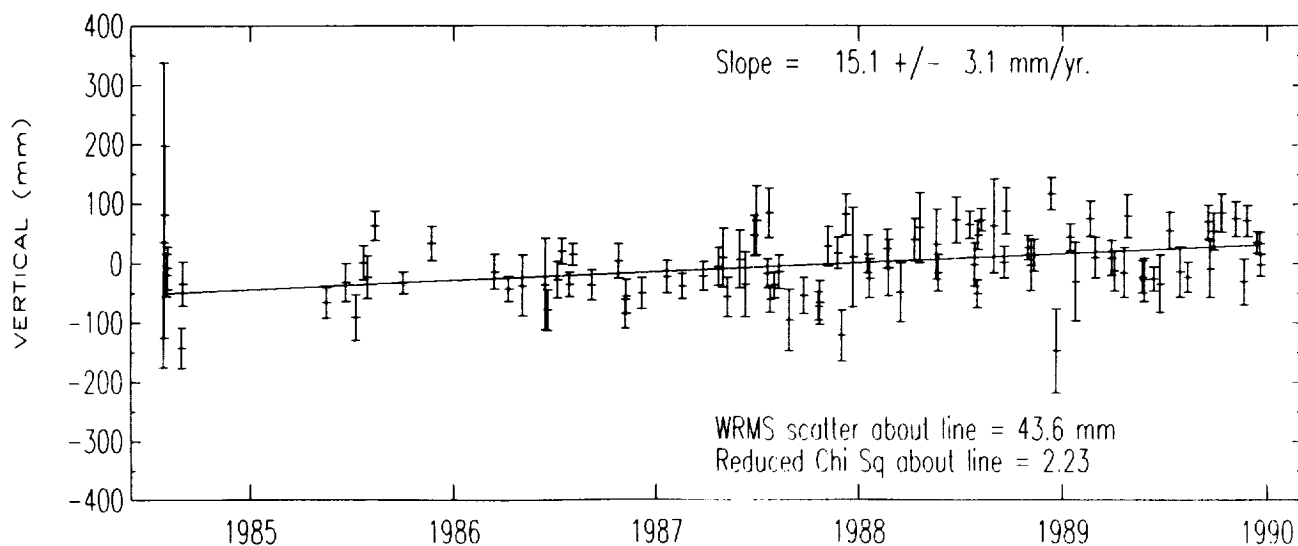
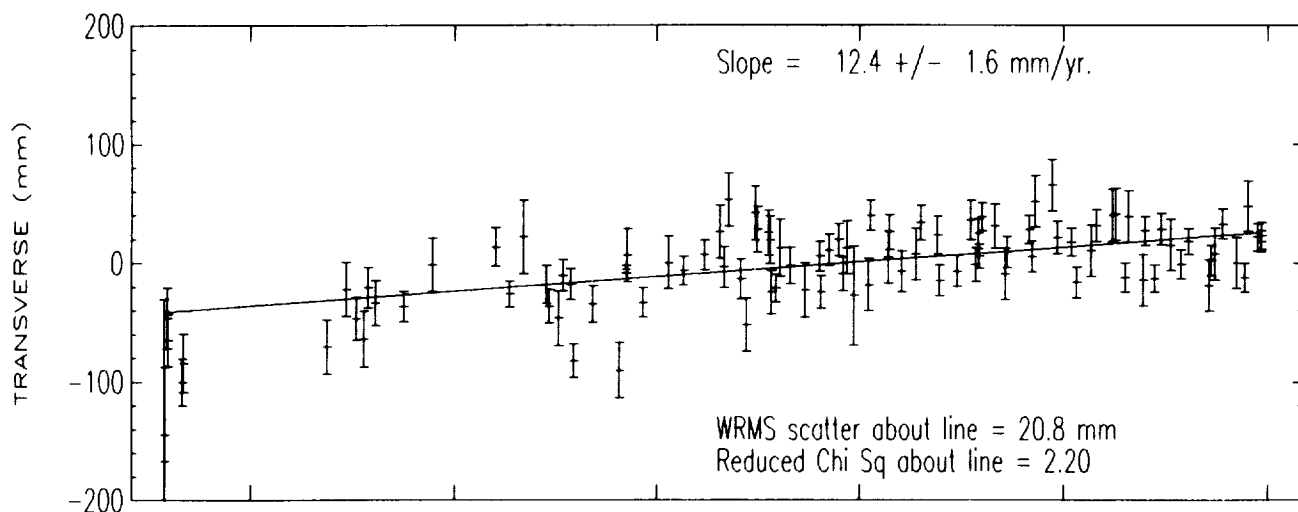
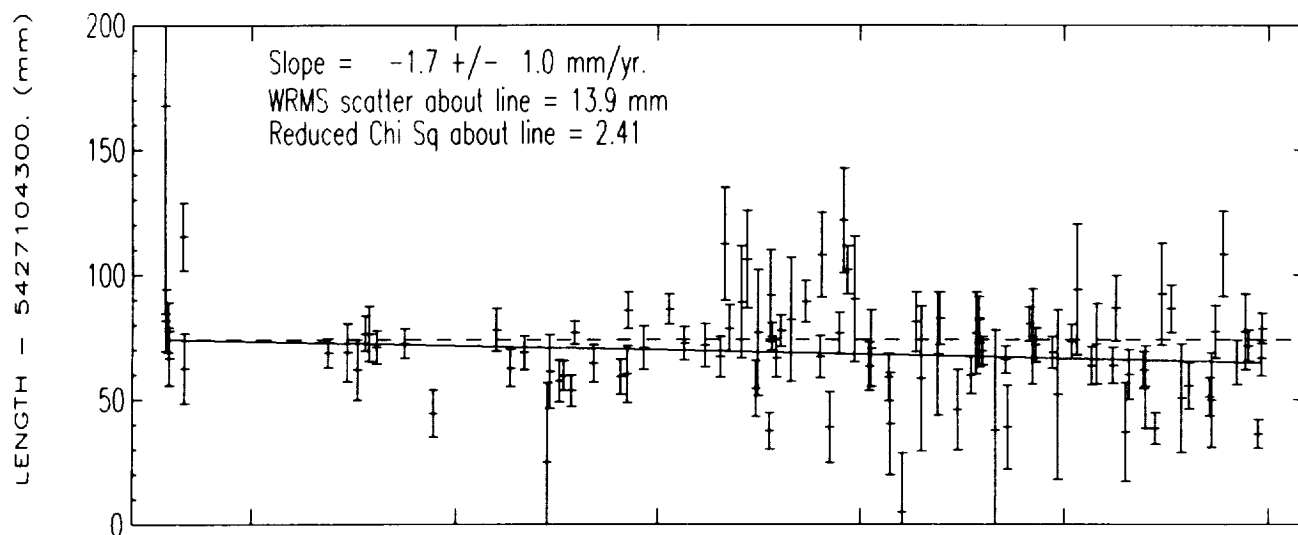
54 Observations



GILCREEK TO KASHIMA

(Length = 5427 km)

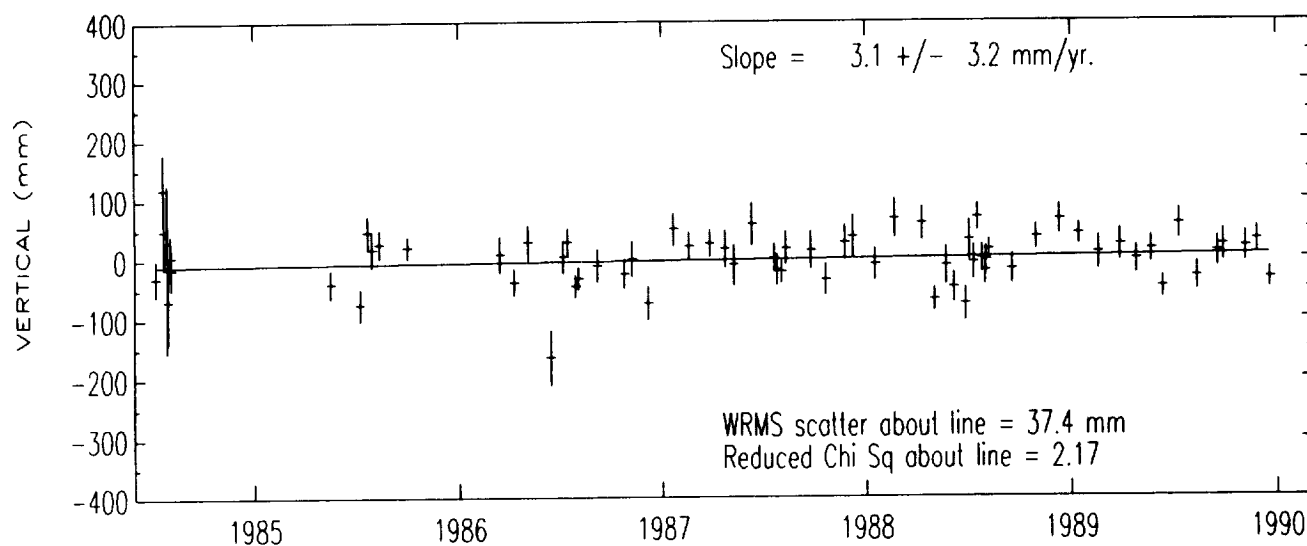
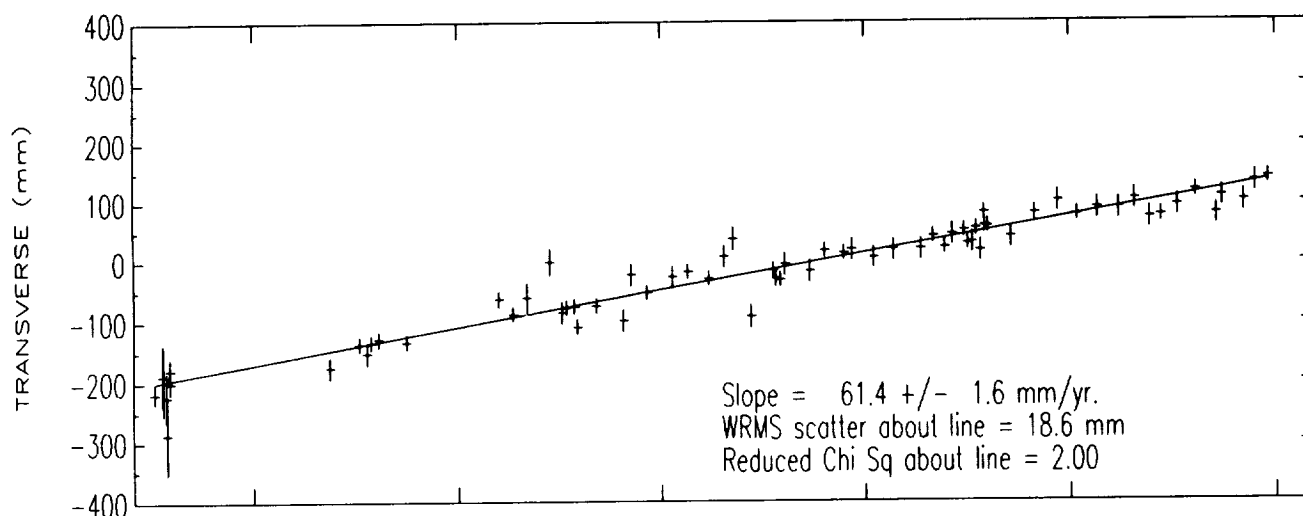
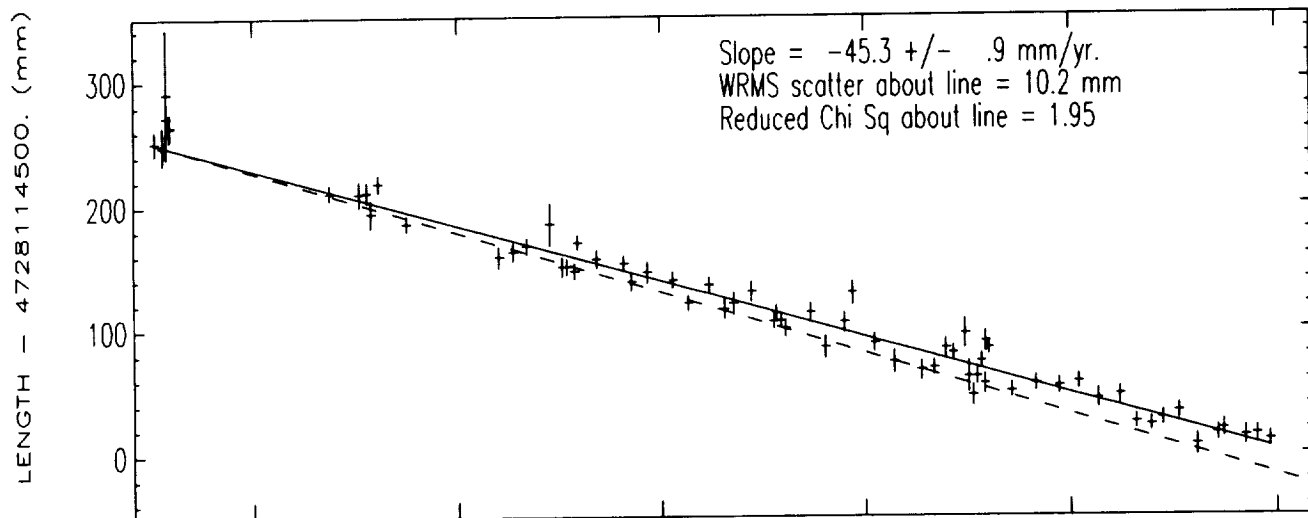
100 Observations



GILCREEK TO KAUAI

(Length = 4728 km)

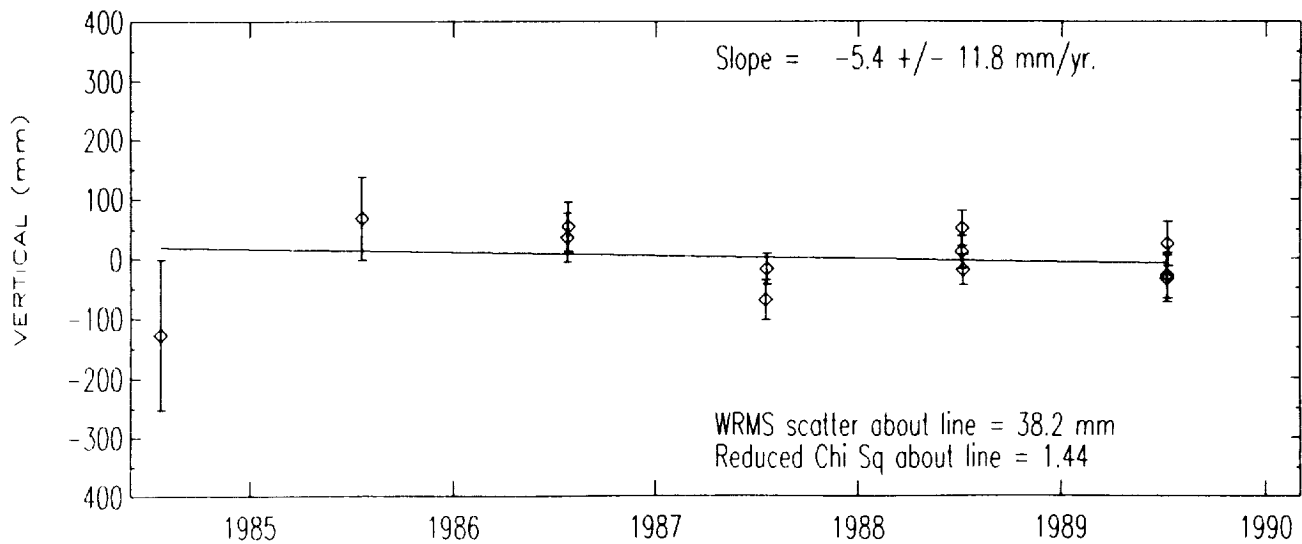
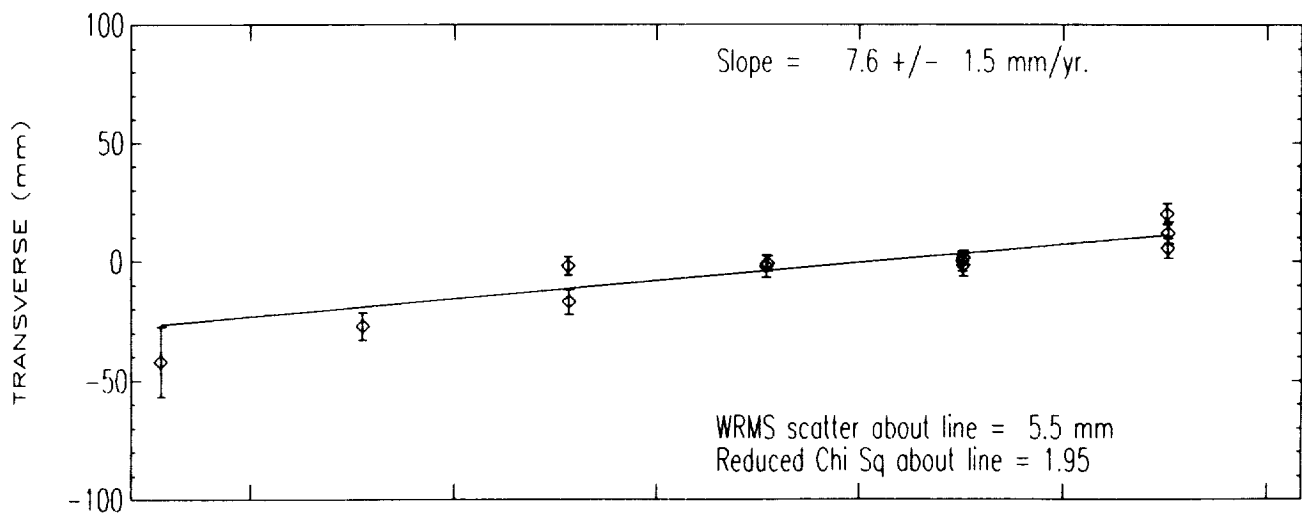
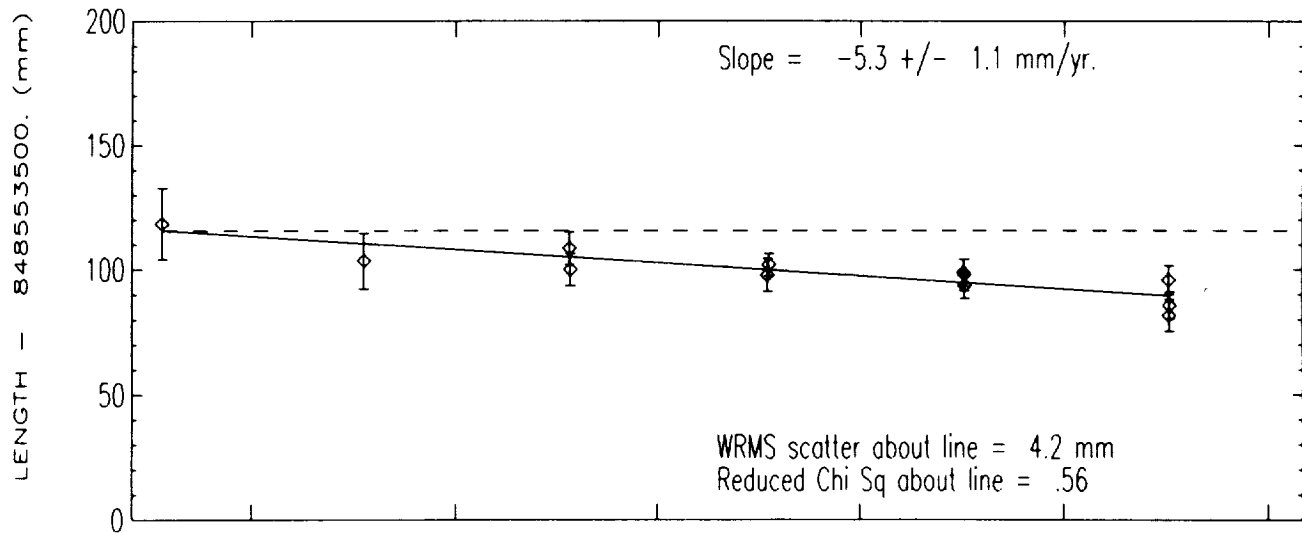
69 Observations



GILCREEK TO KODIAK

(Length = 848 km)

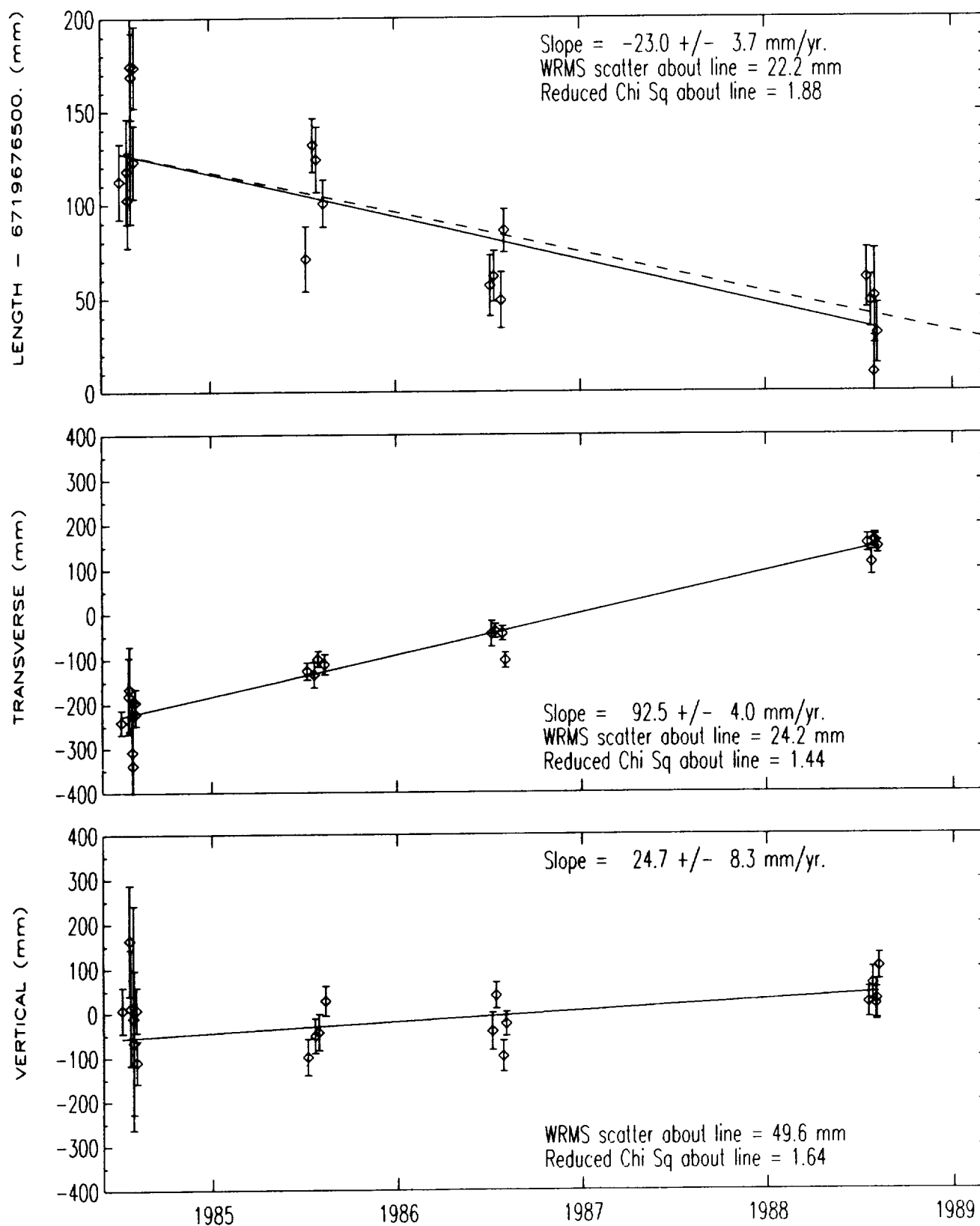
12 Observations



GILCREEK TO KWAJAL26

(Length = 6719 km)

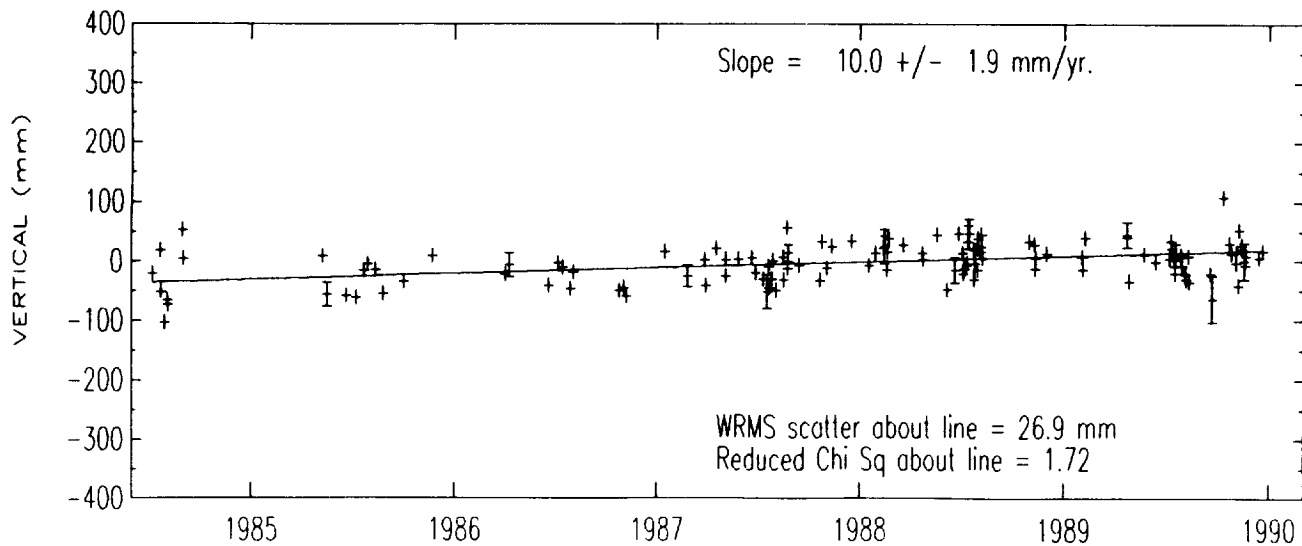
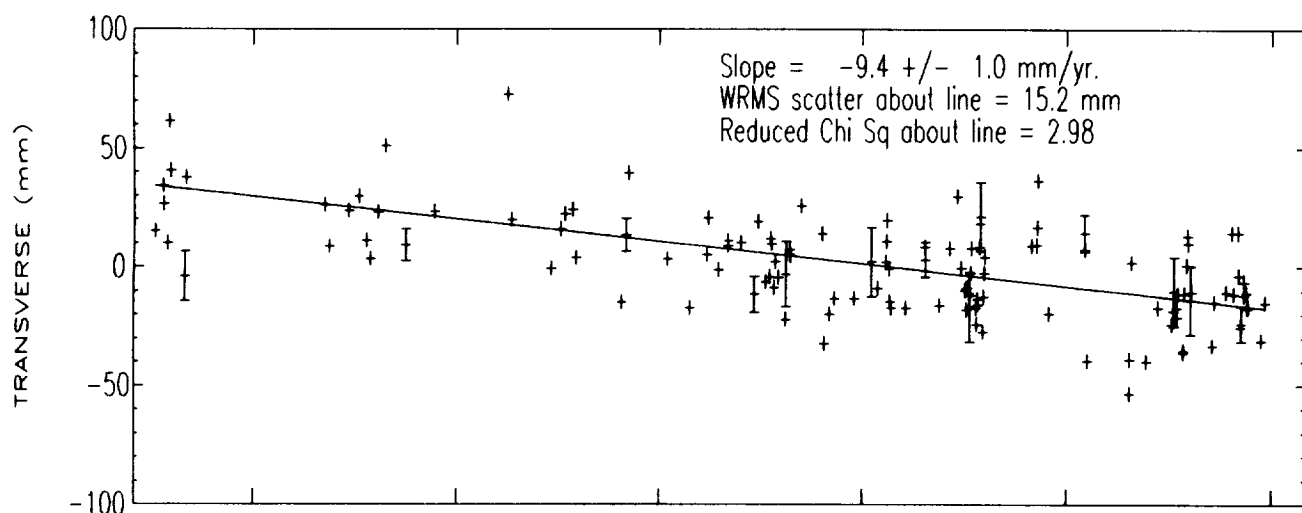
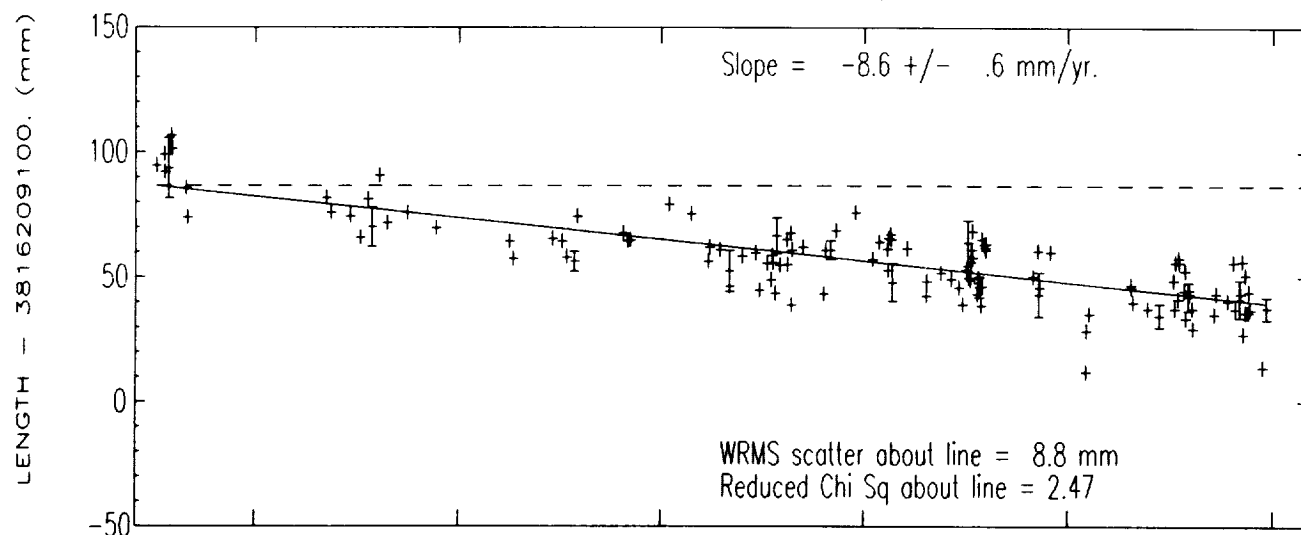
20 Observations



GILCREEK TO MOJAVE12

(Length = 3816 km)

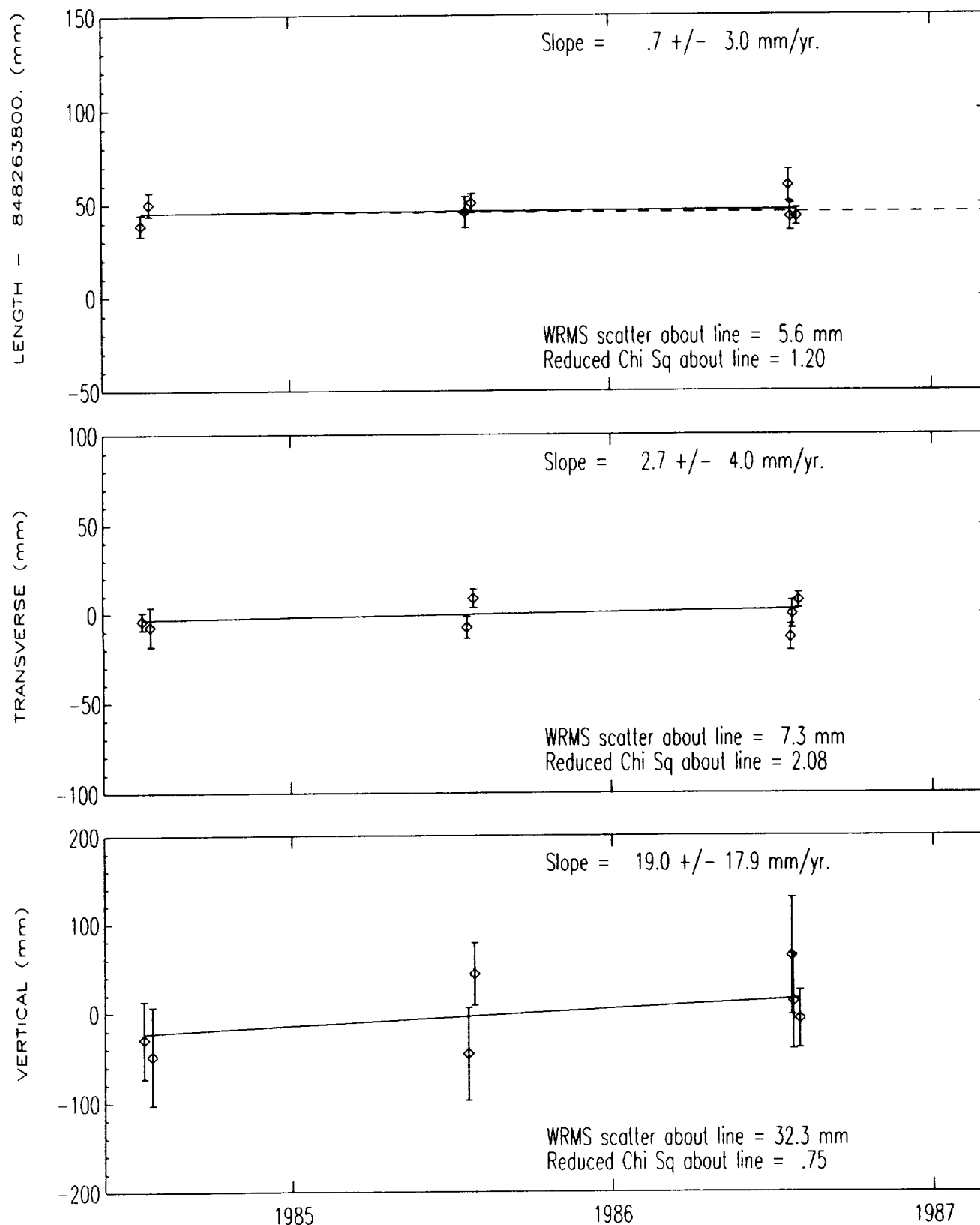
134 Observations



GILCREEK TO NOME

(Length = 848 km)

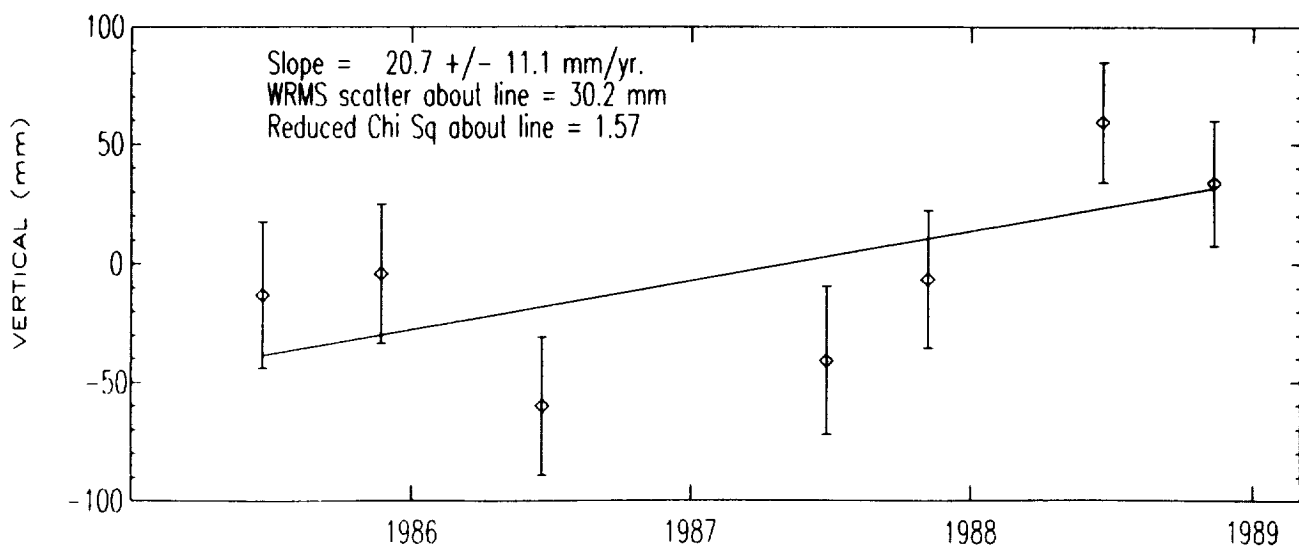
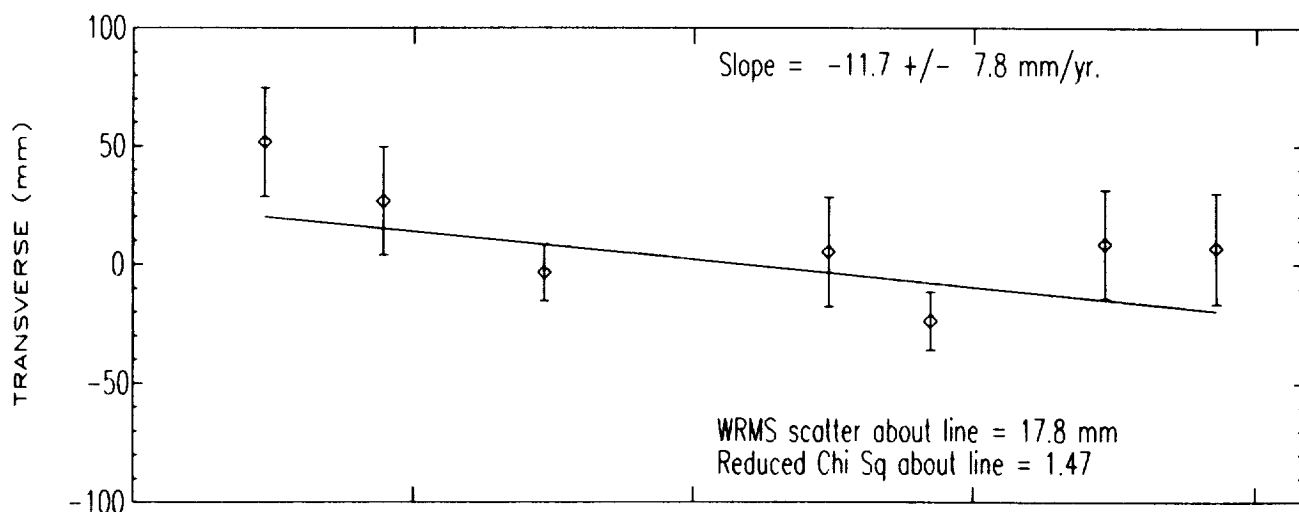
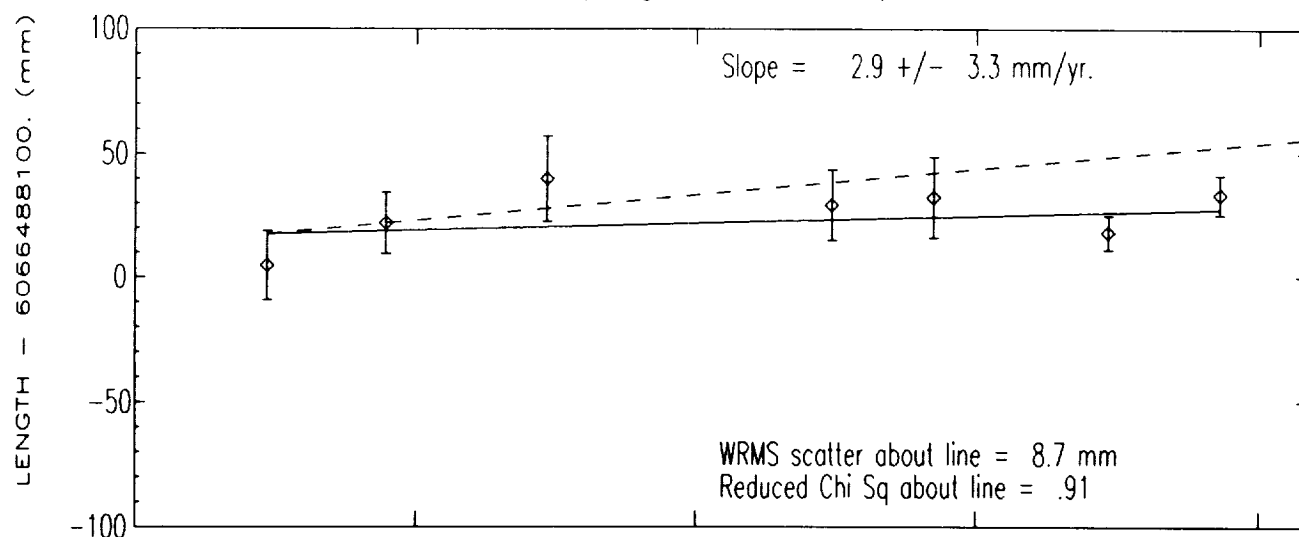
7 Observations



GILCREEK TO ONSALA60

(Length = 6066 km)

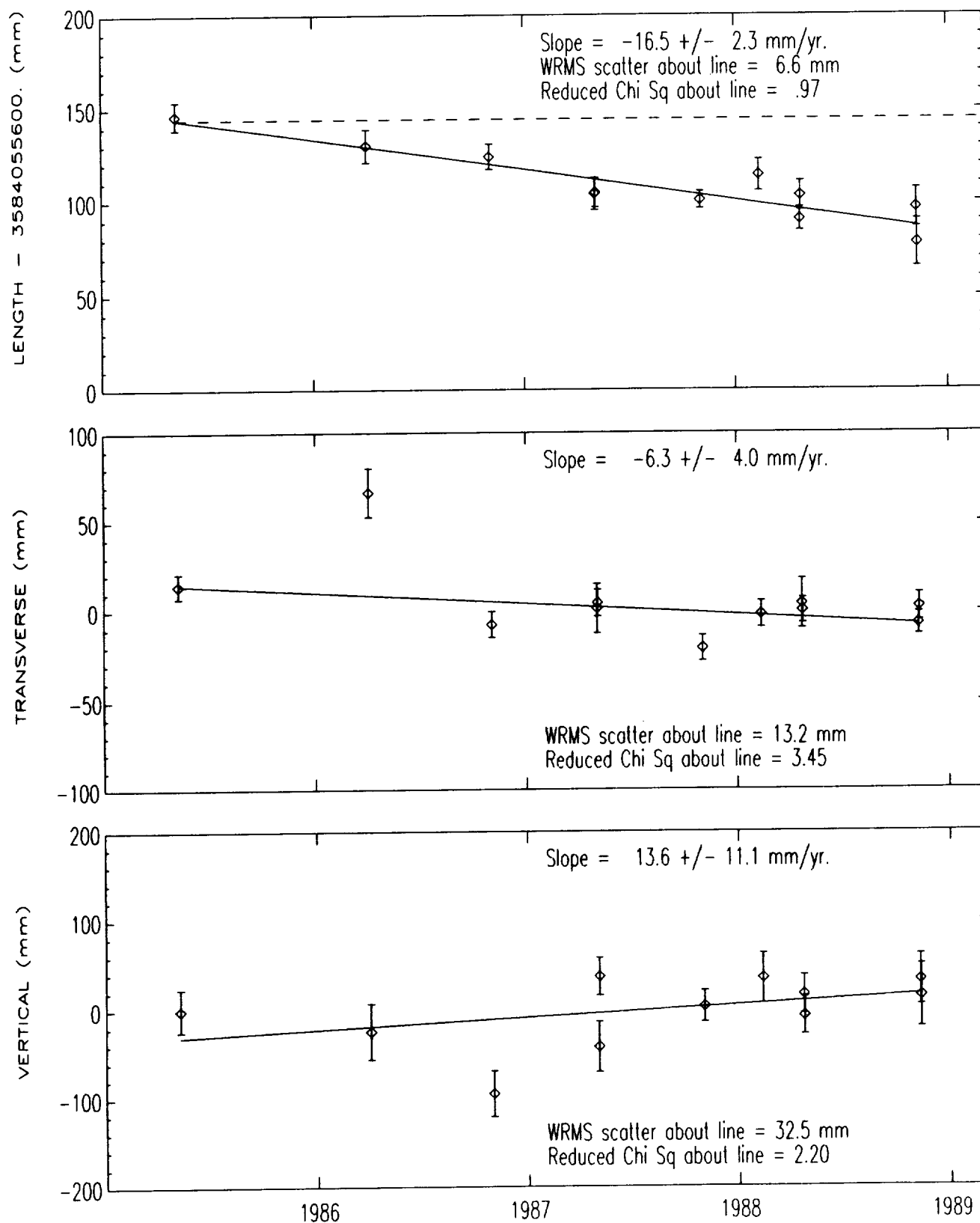
7 Observations



GILCREEK TO OVRO 130

(Length = 3584 km)

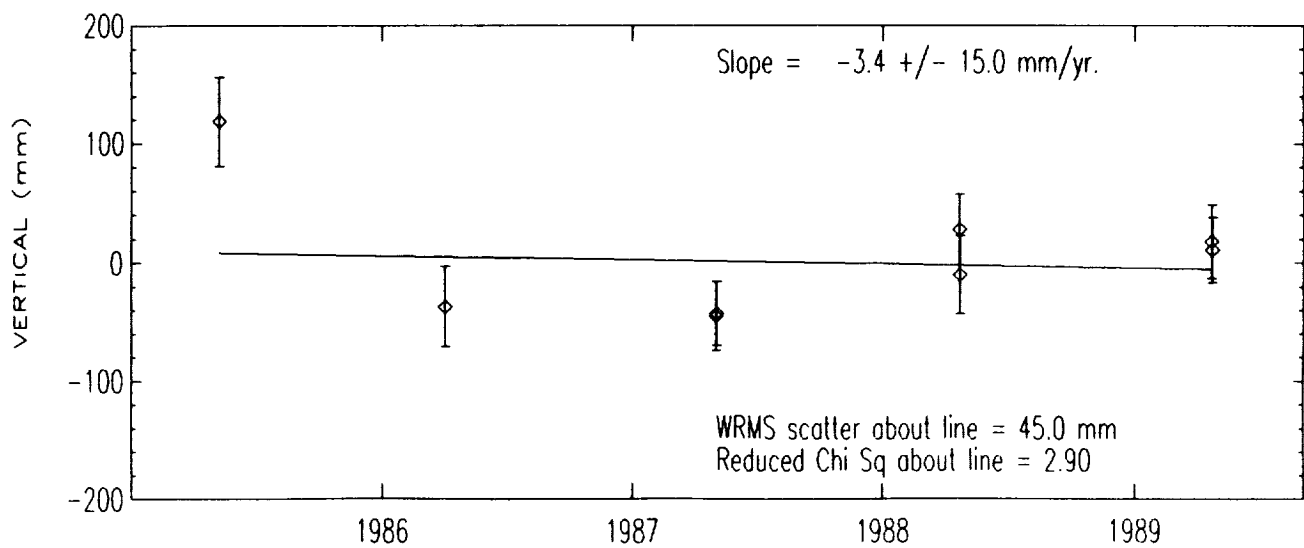
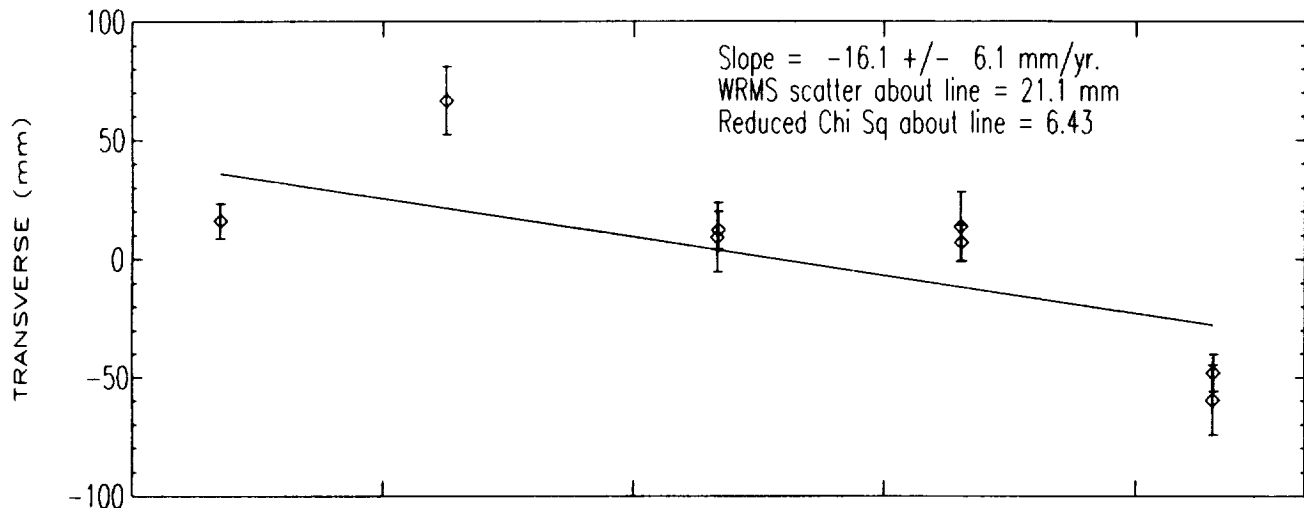
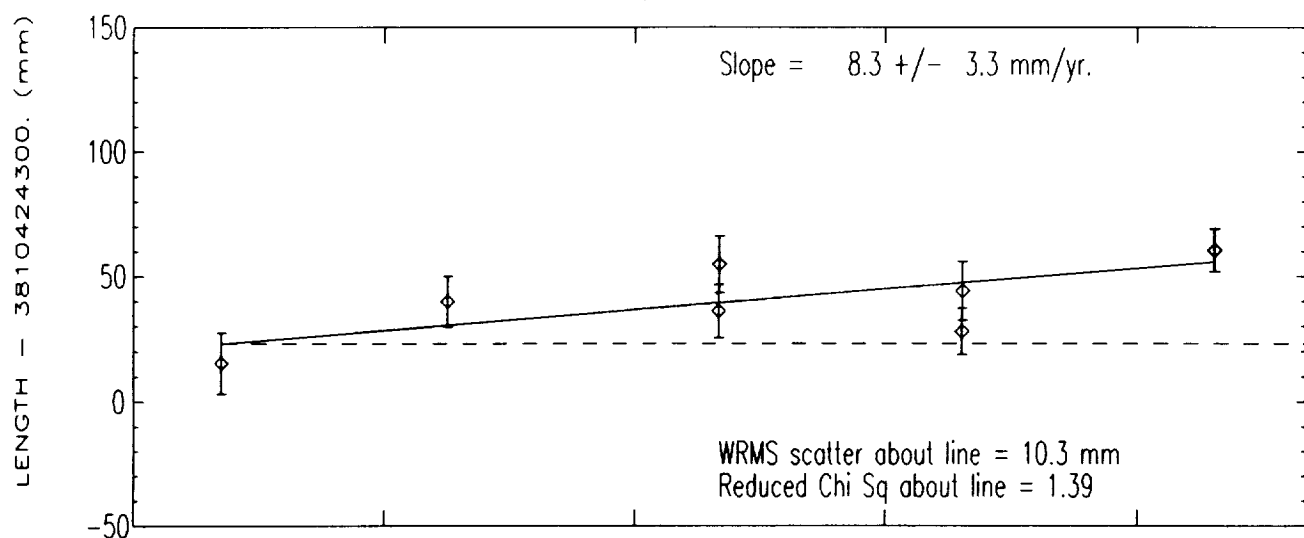
11 Observations



GILCREEK TO PLATTVIL

(Length = 3810 km)

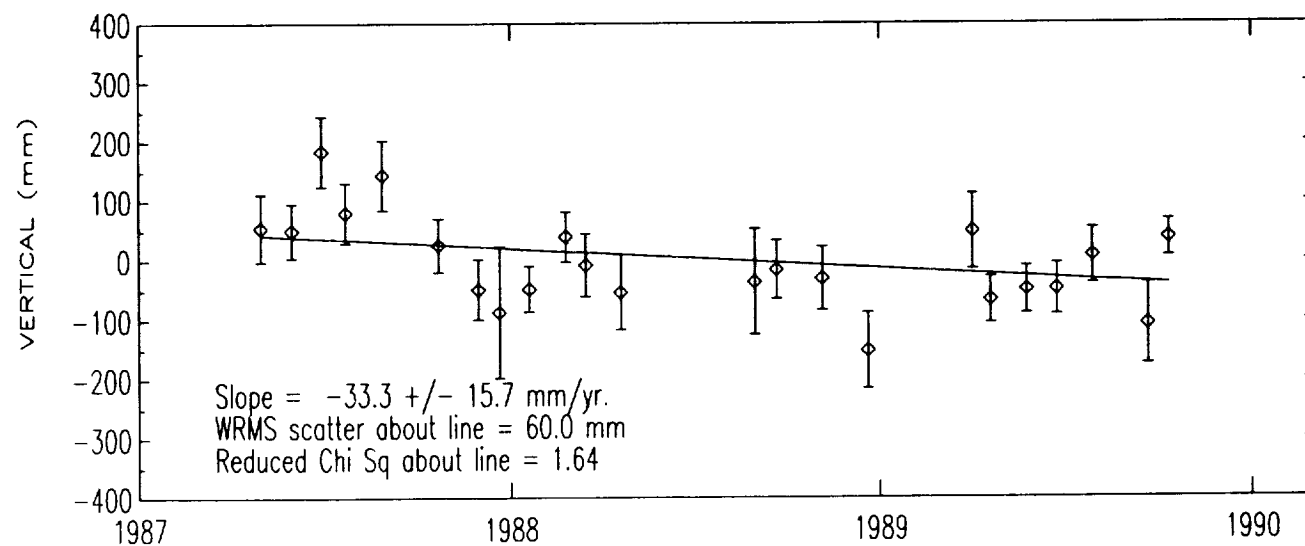
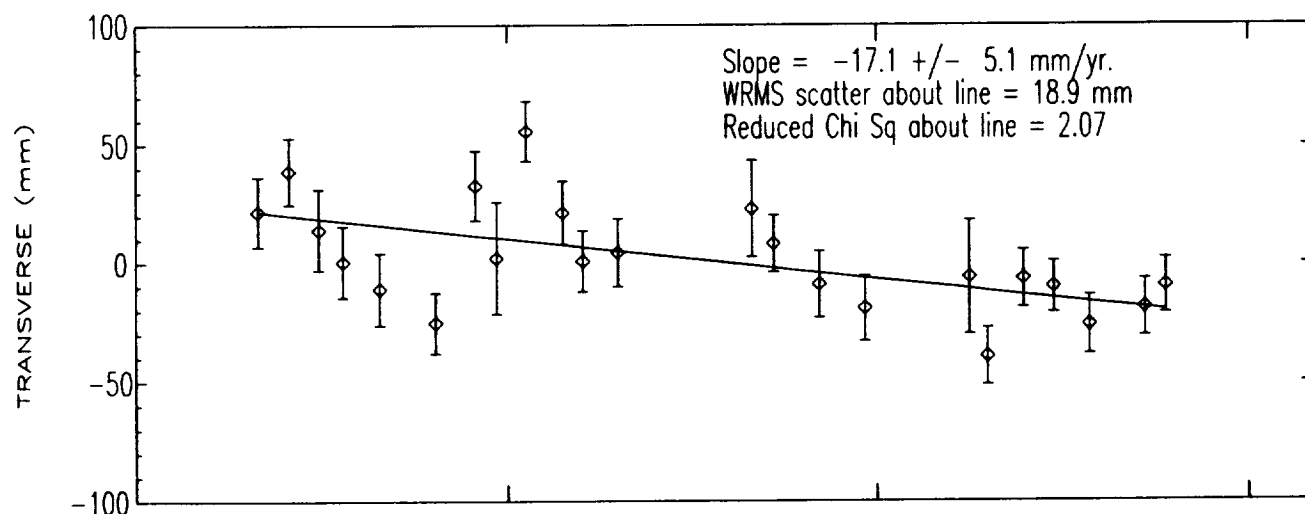
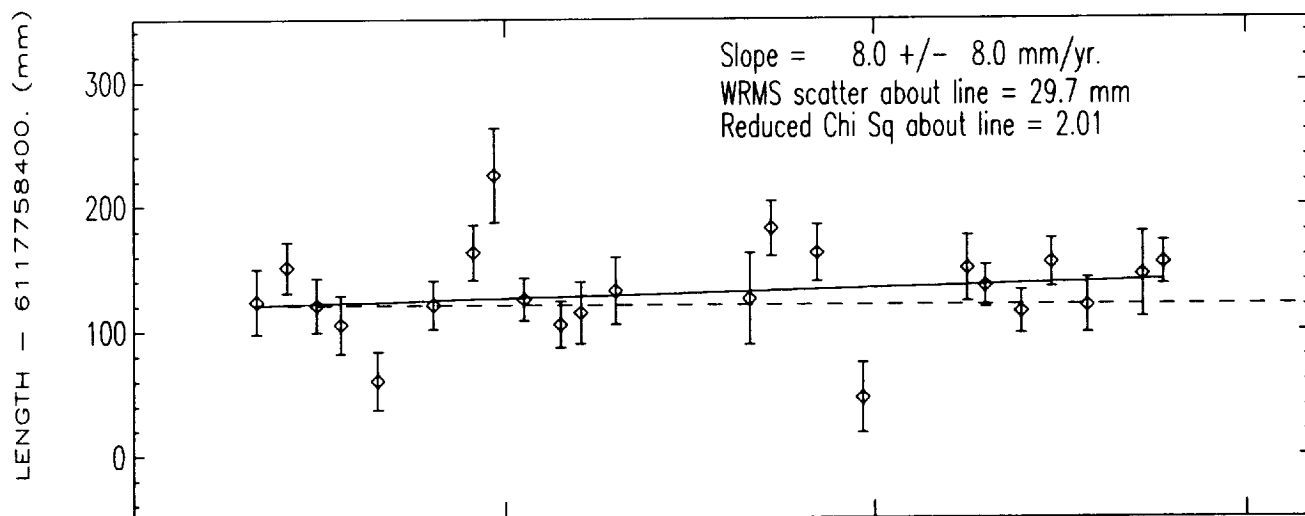
8 Observations



GILCREEK TO RICHMOND

(Length = 6117 km)

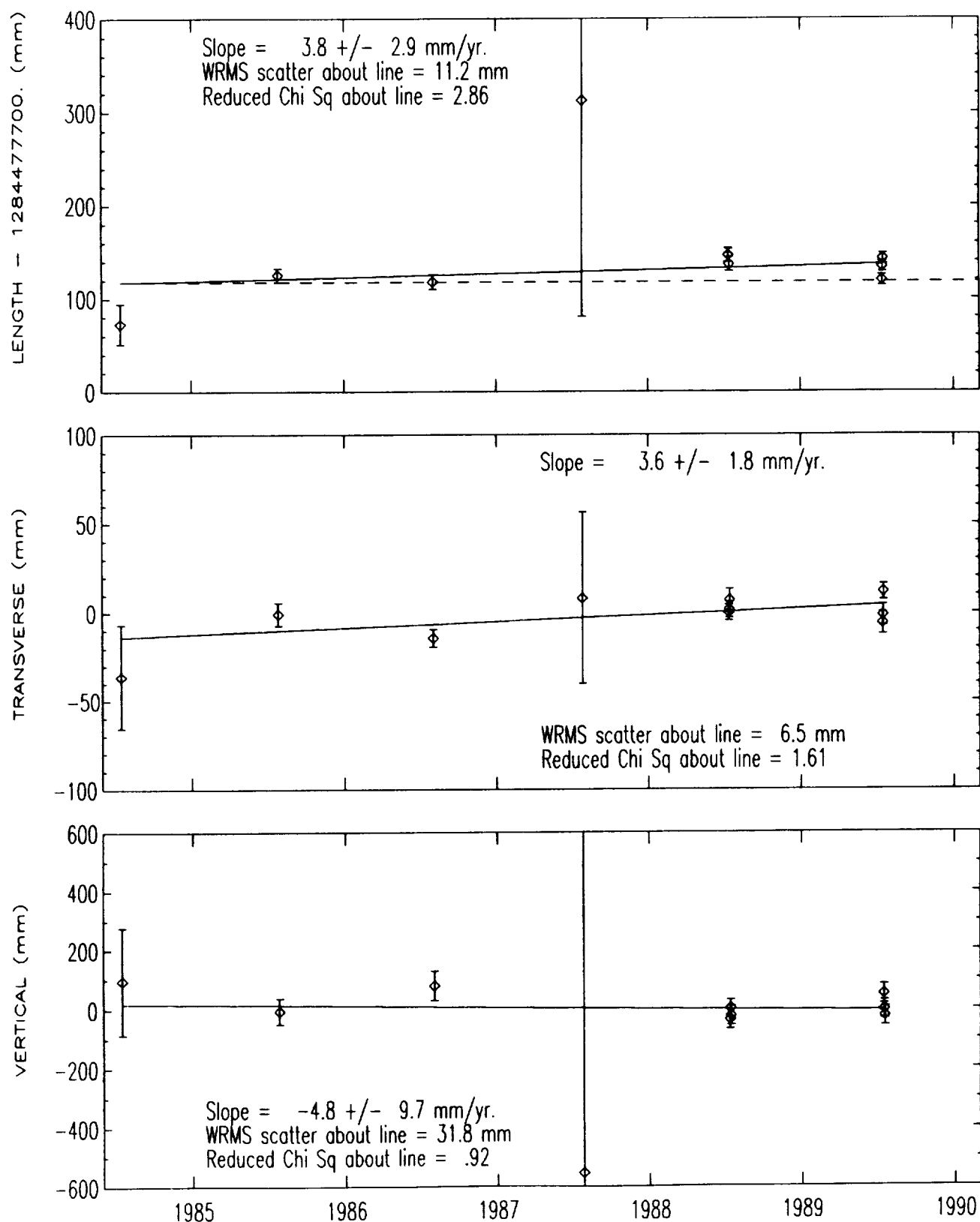
23 Observations



GILCREEK TO SNDPOINT

(Length = 1284 km)

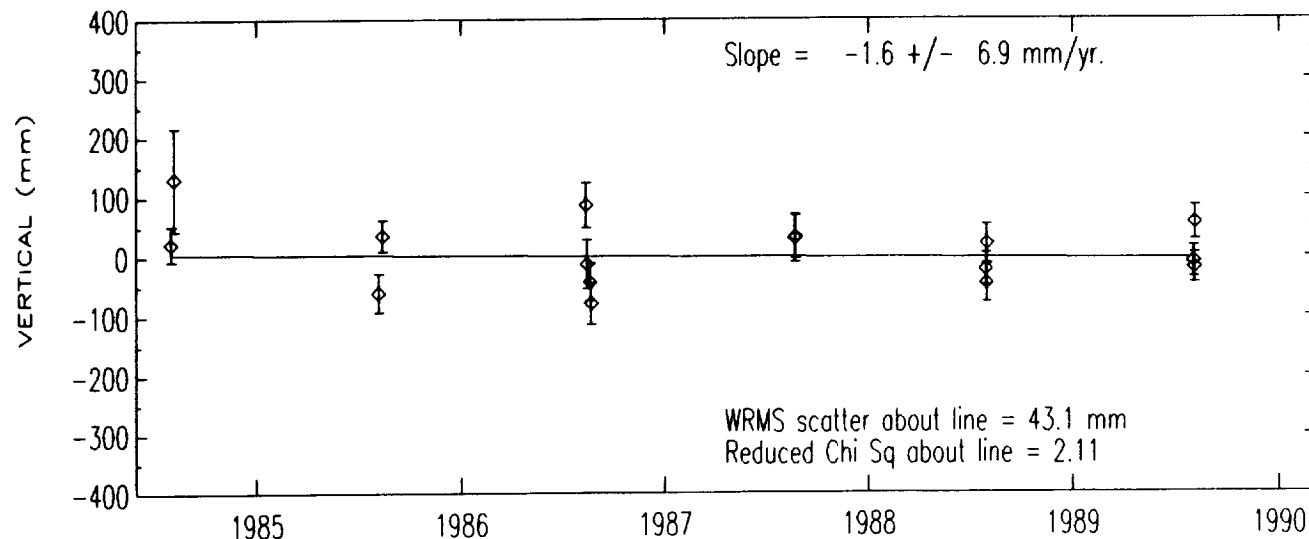
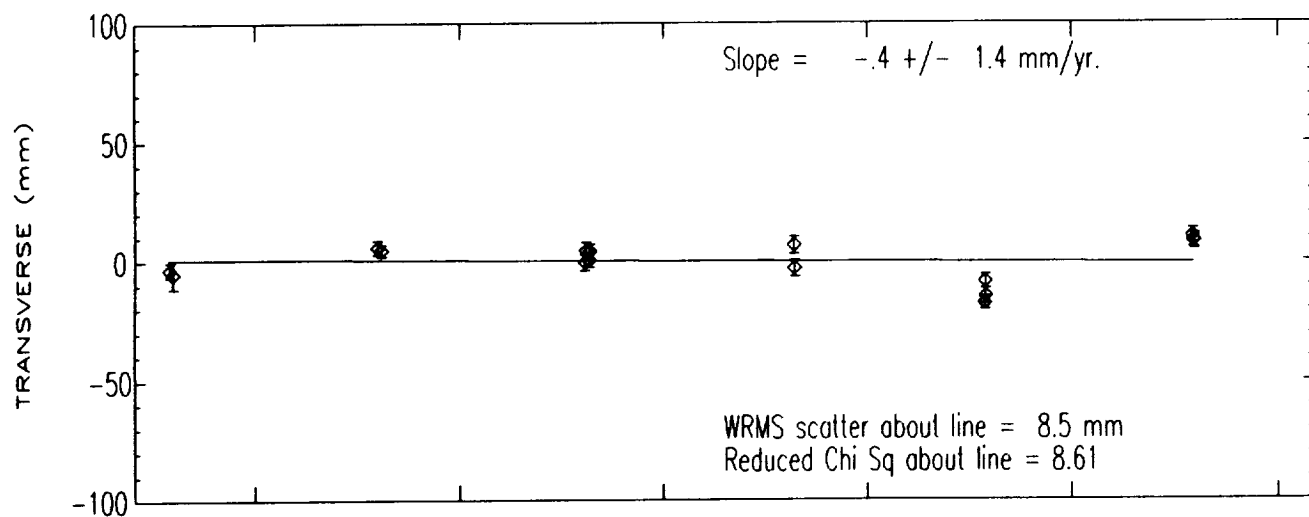
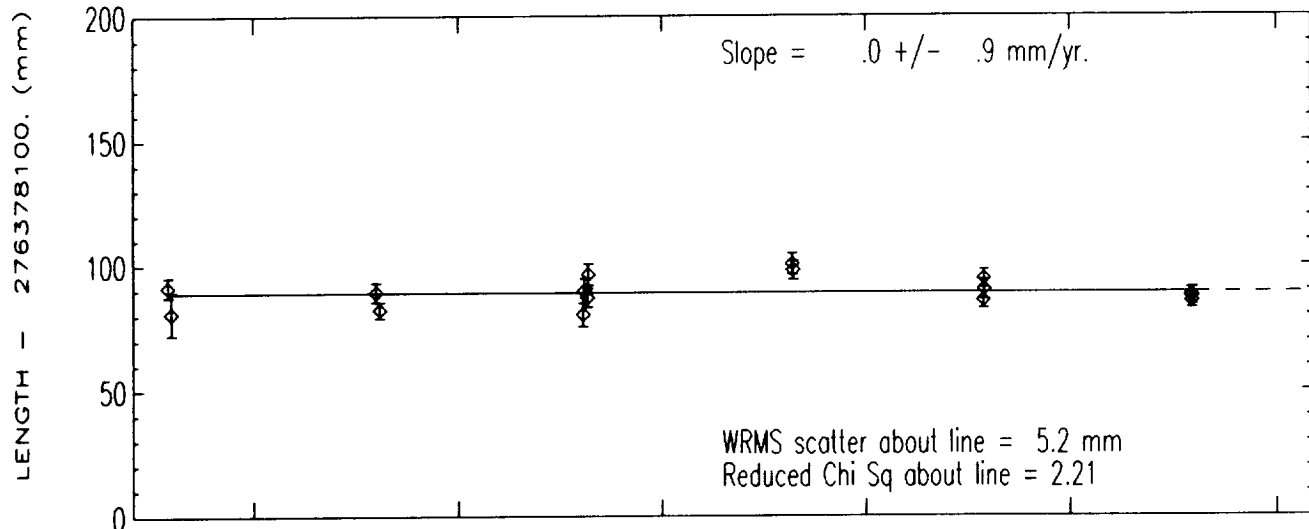
10 Observations



GILCREEK TO SOURDOGH

(Length = 276 km)

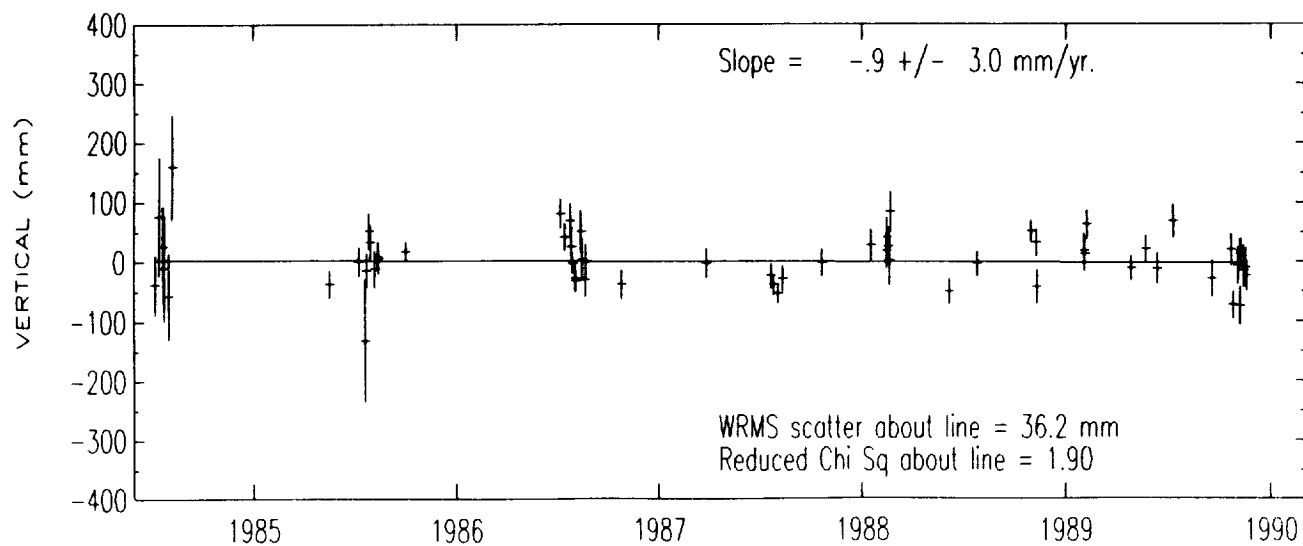
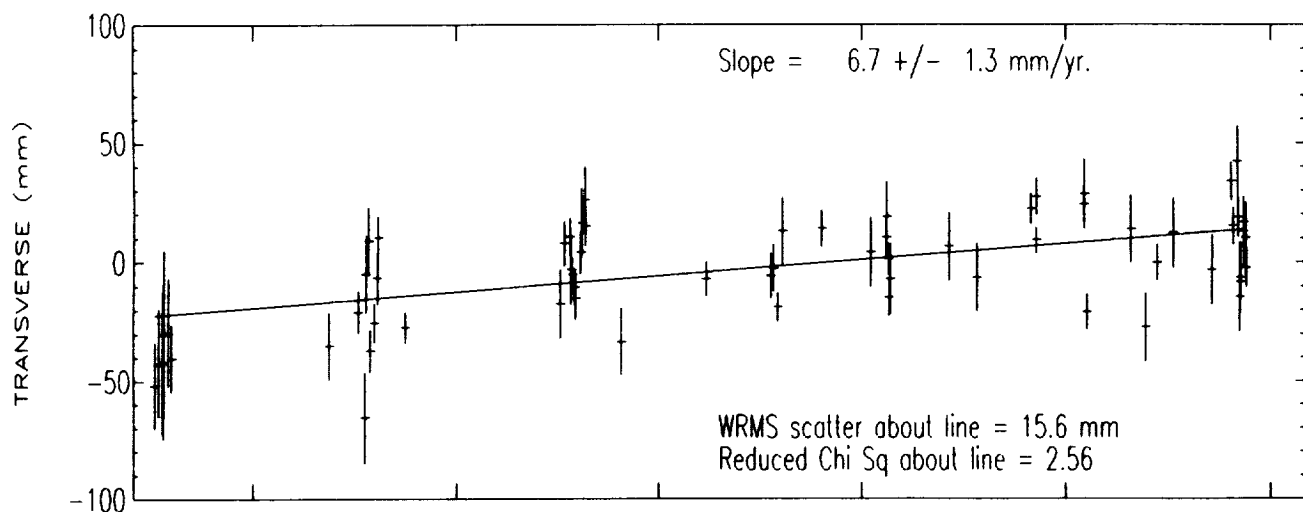
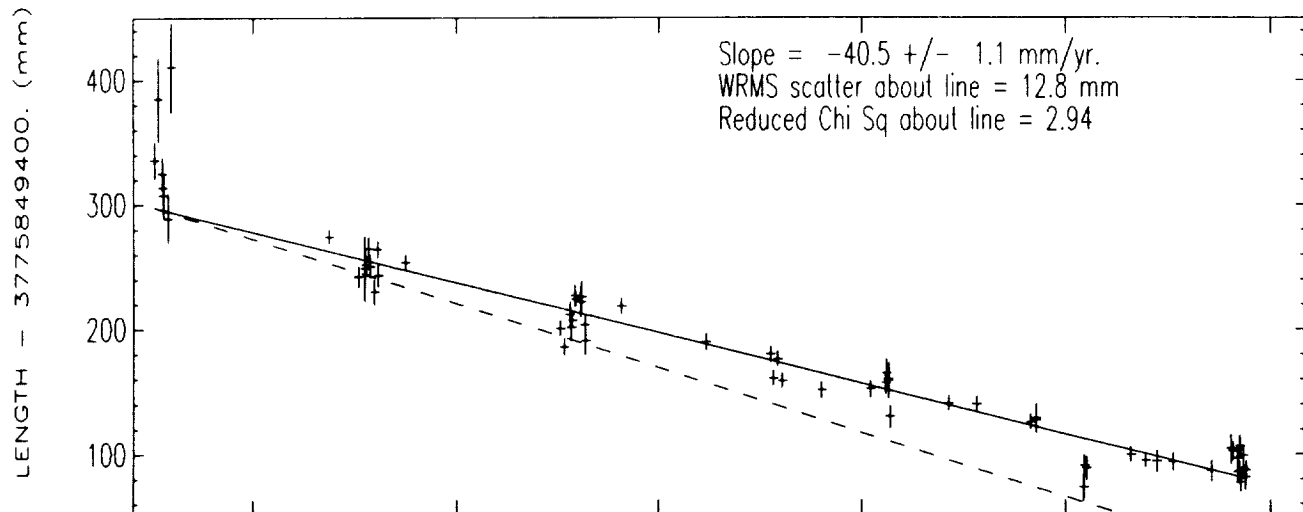
16 Observations



GILCREEK TO VNDNBERG

(Length = 3775 km)

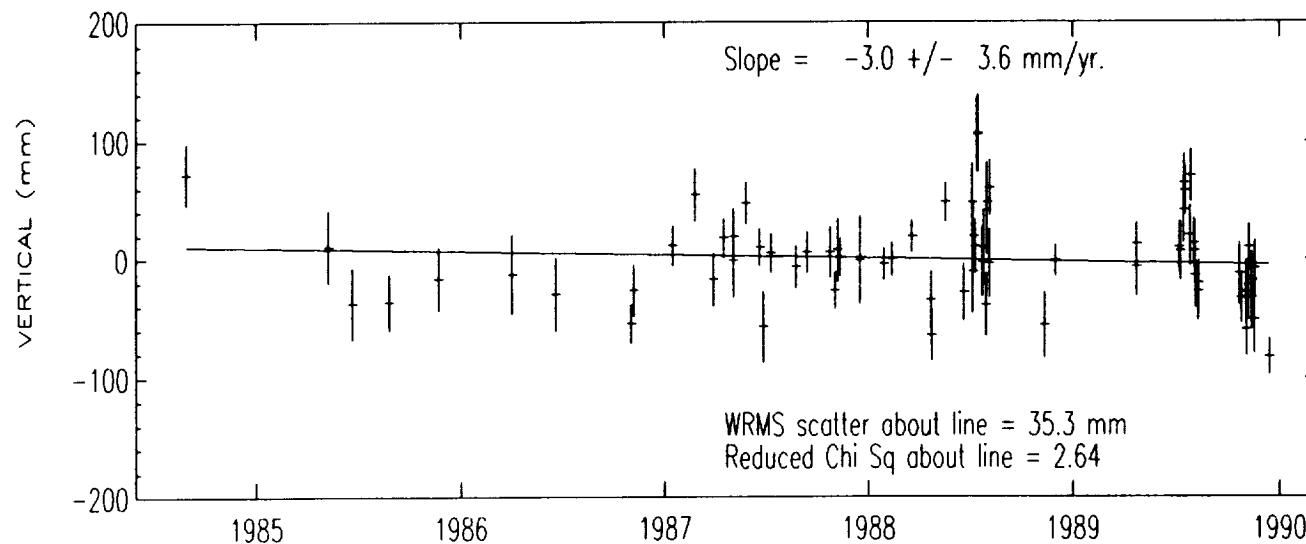
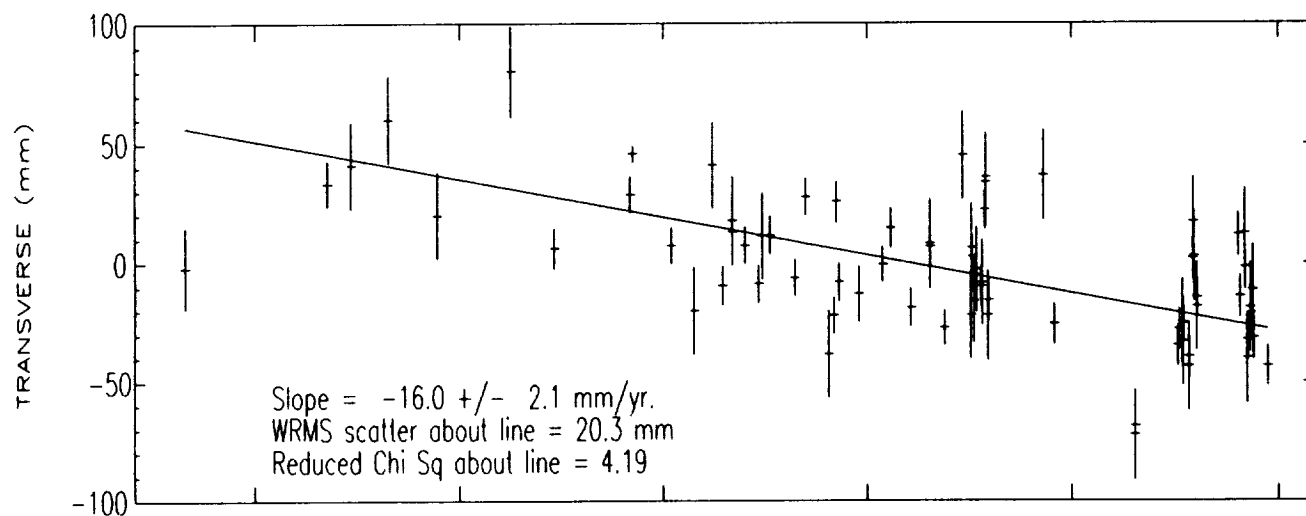
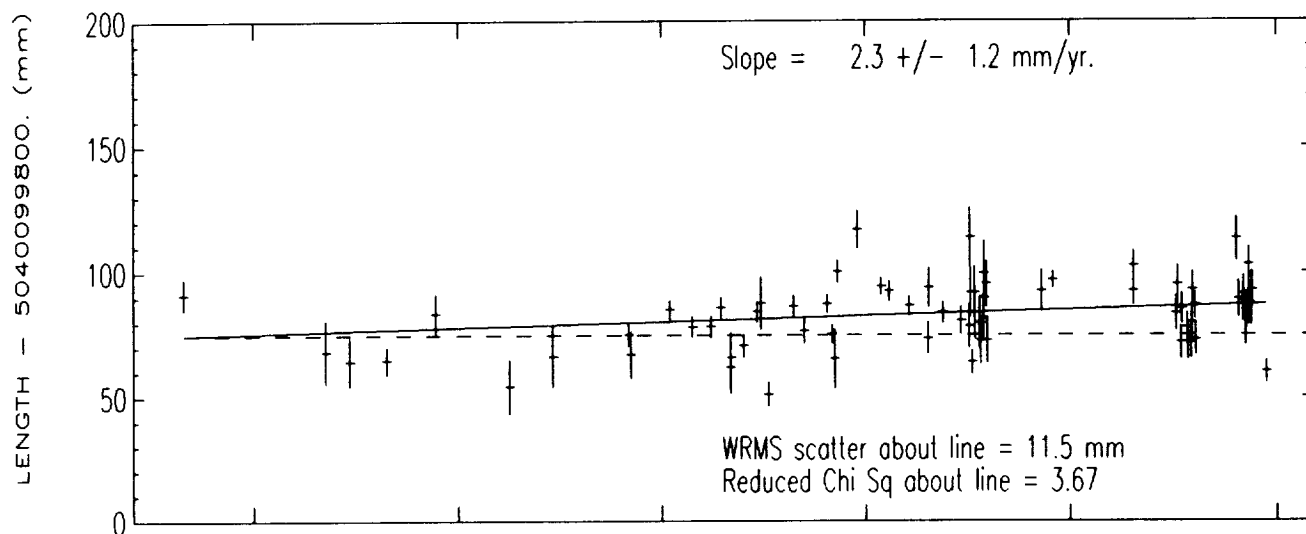
65 Observations



GILCREEK TO WESTFORD

(Length = 5040 km)

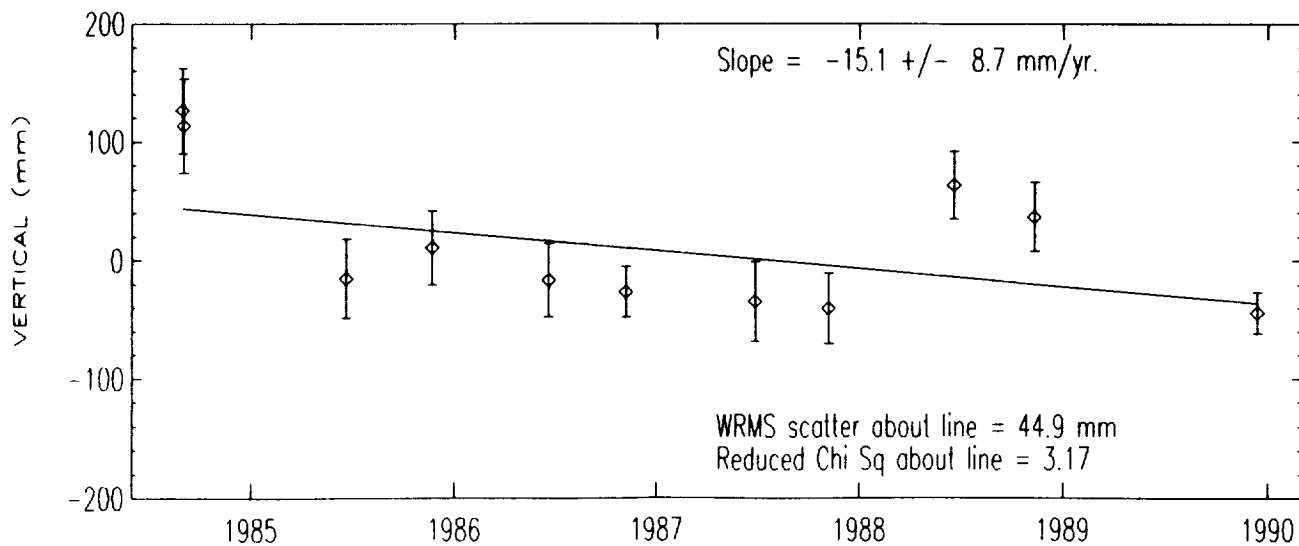
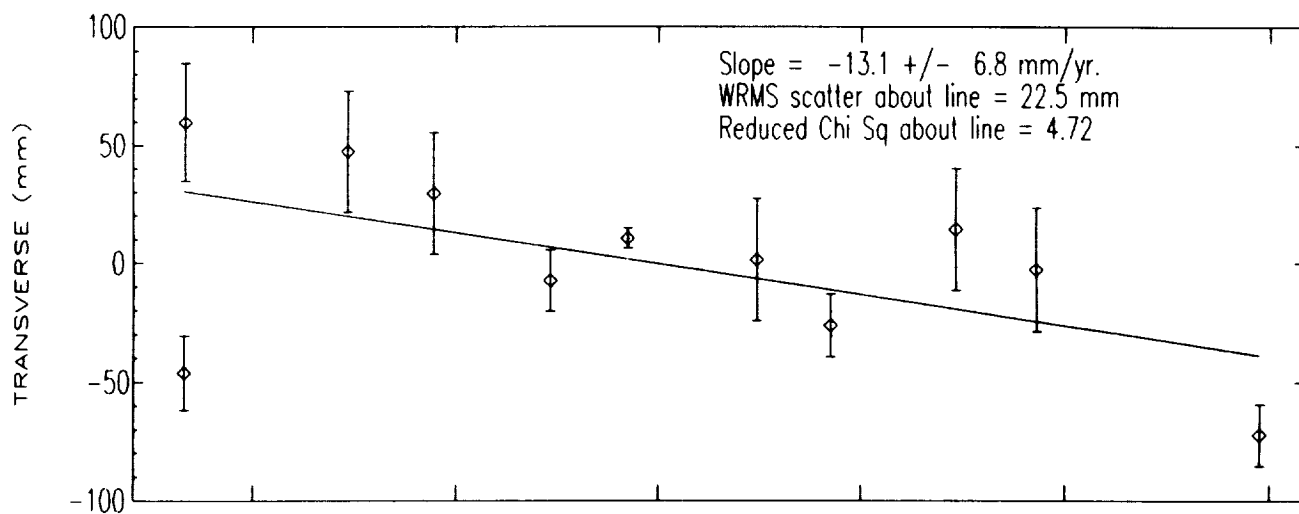
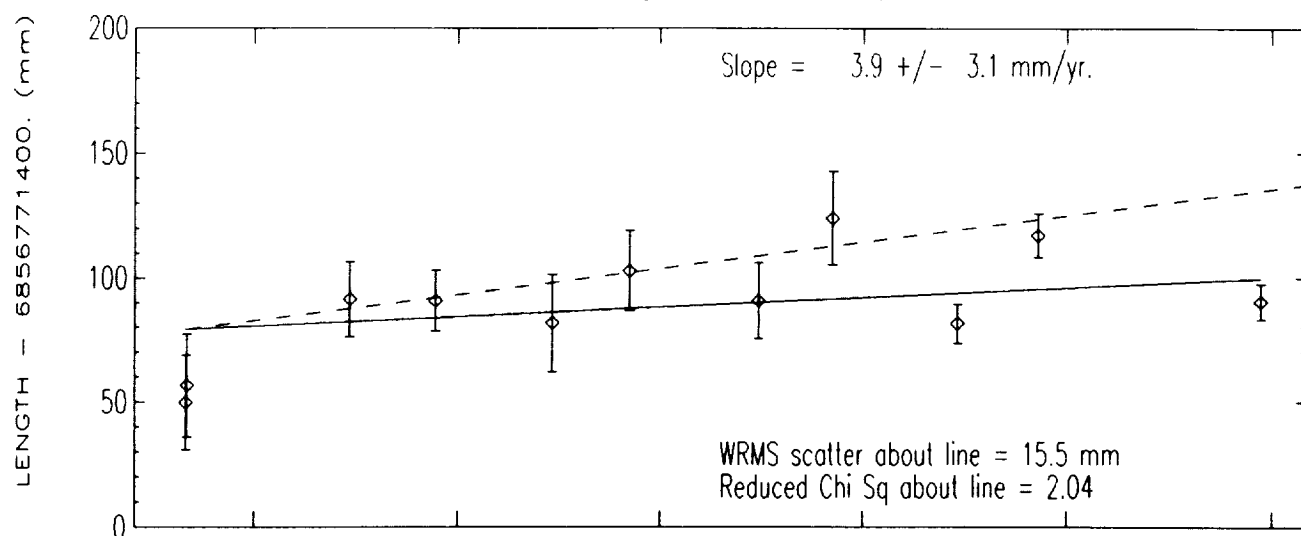
73 Observations



GILCREEK TO WETZELL

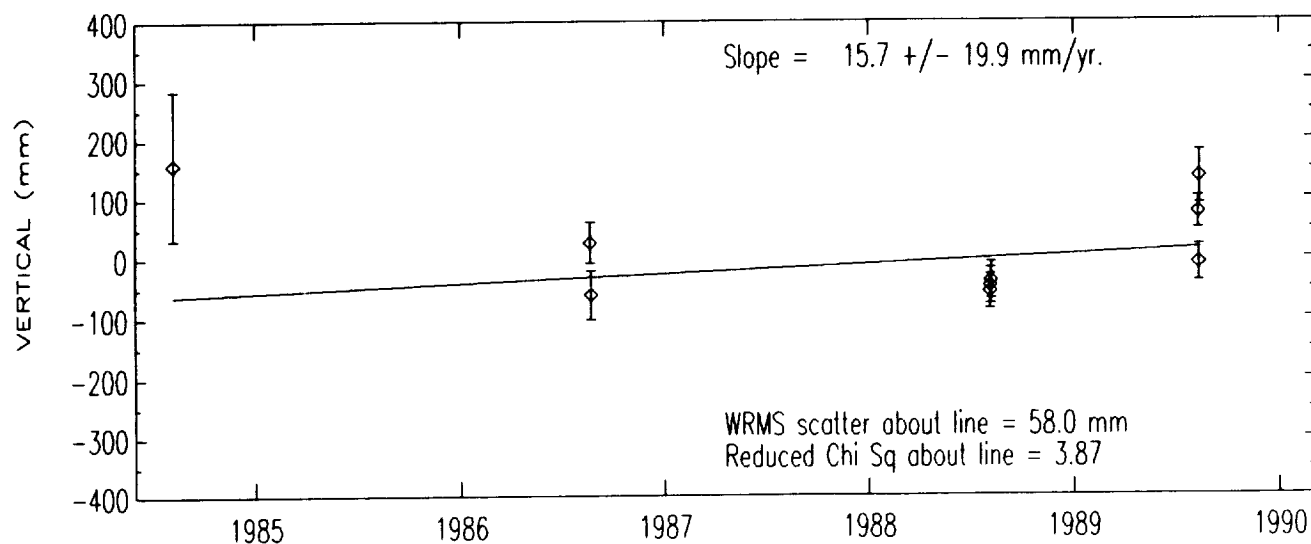
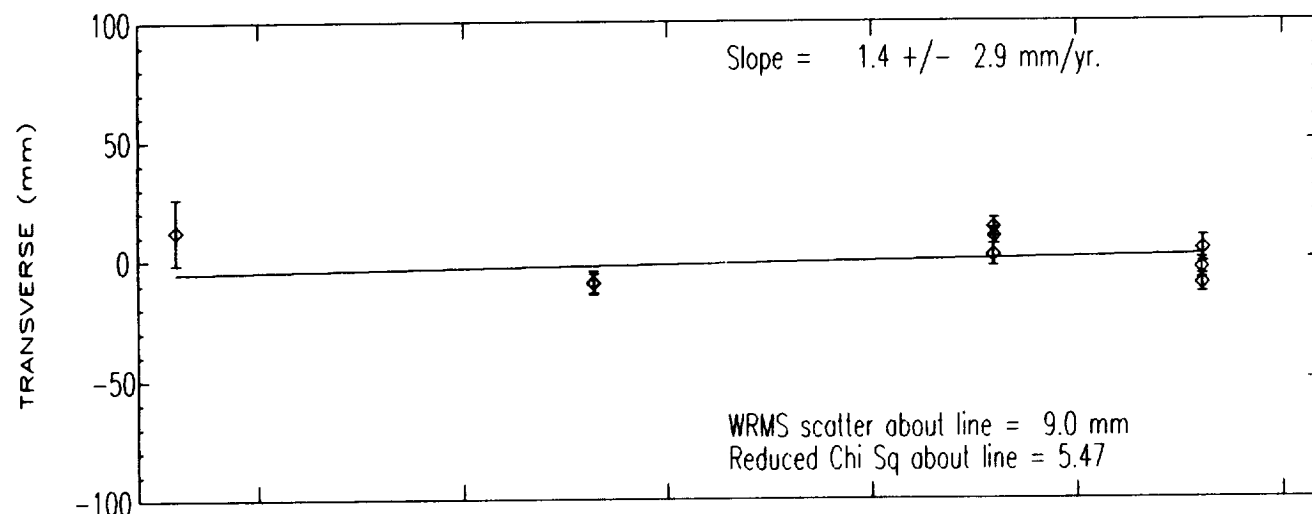
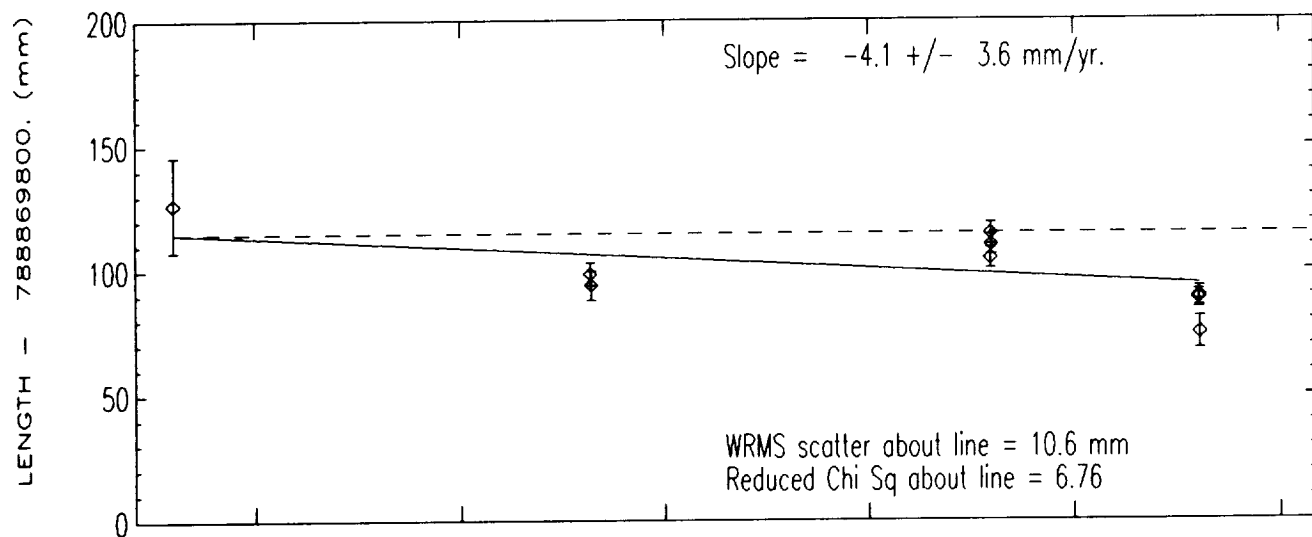
(Length = 6856 km)

11 Observations



GILCREEK TO WHTHORSE (Length = 788 km)

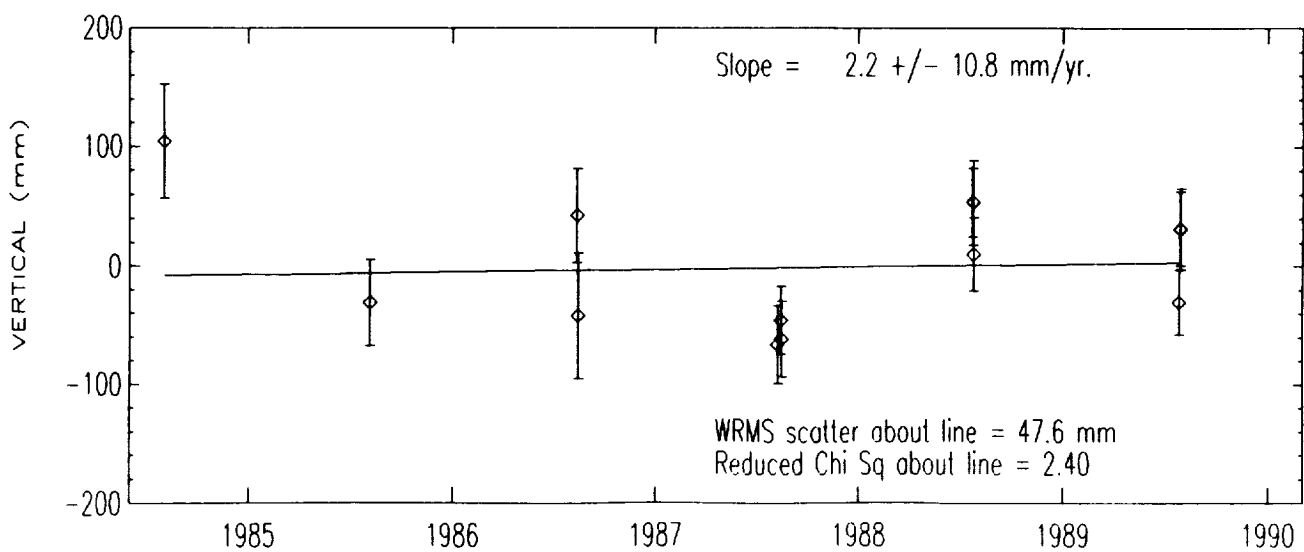
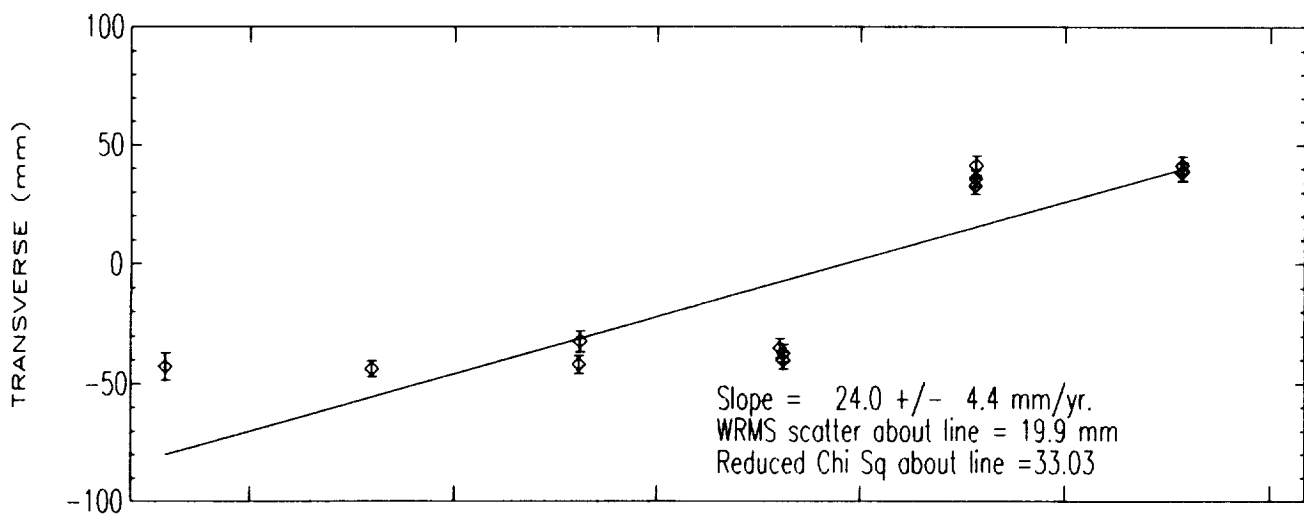
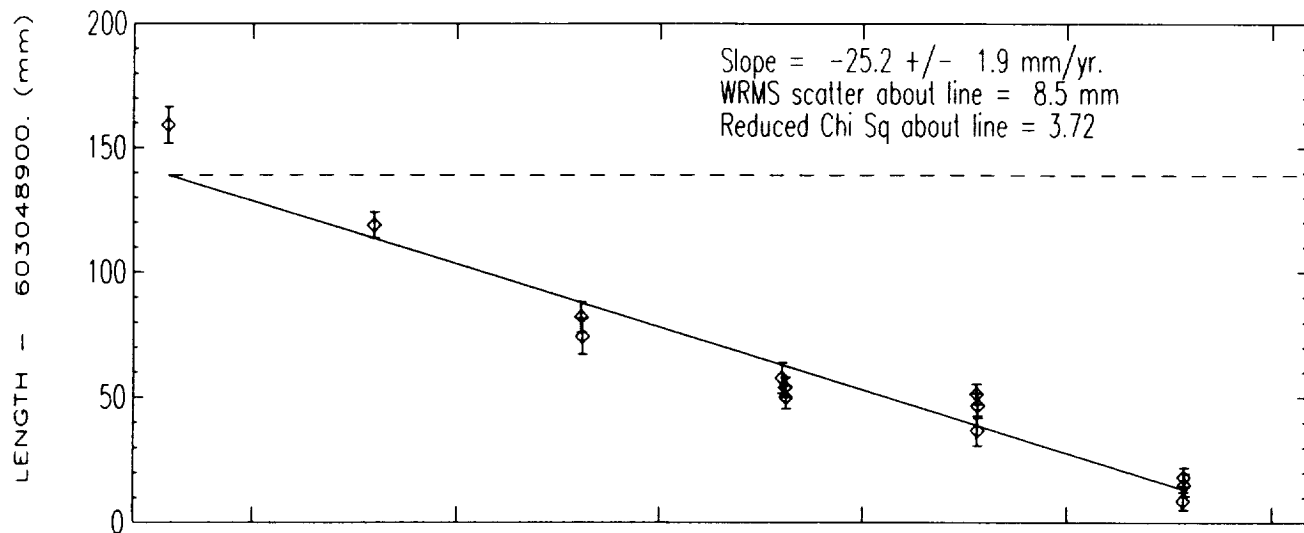
9 Observations



GILCREEK TO YAKATAGA

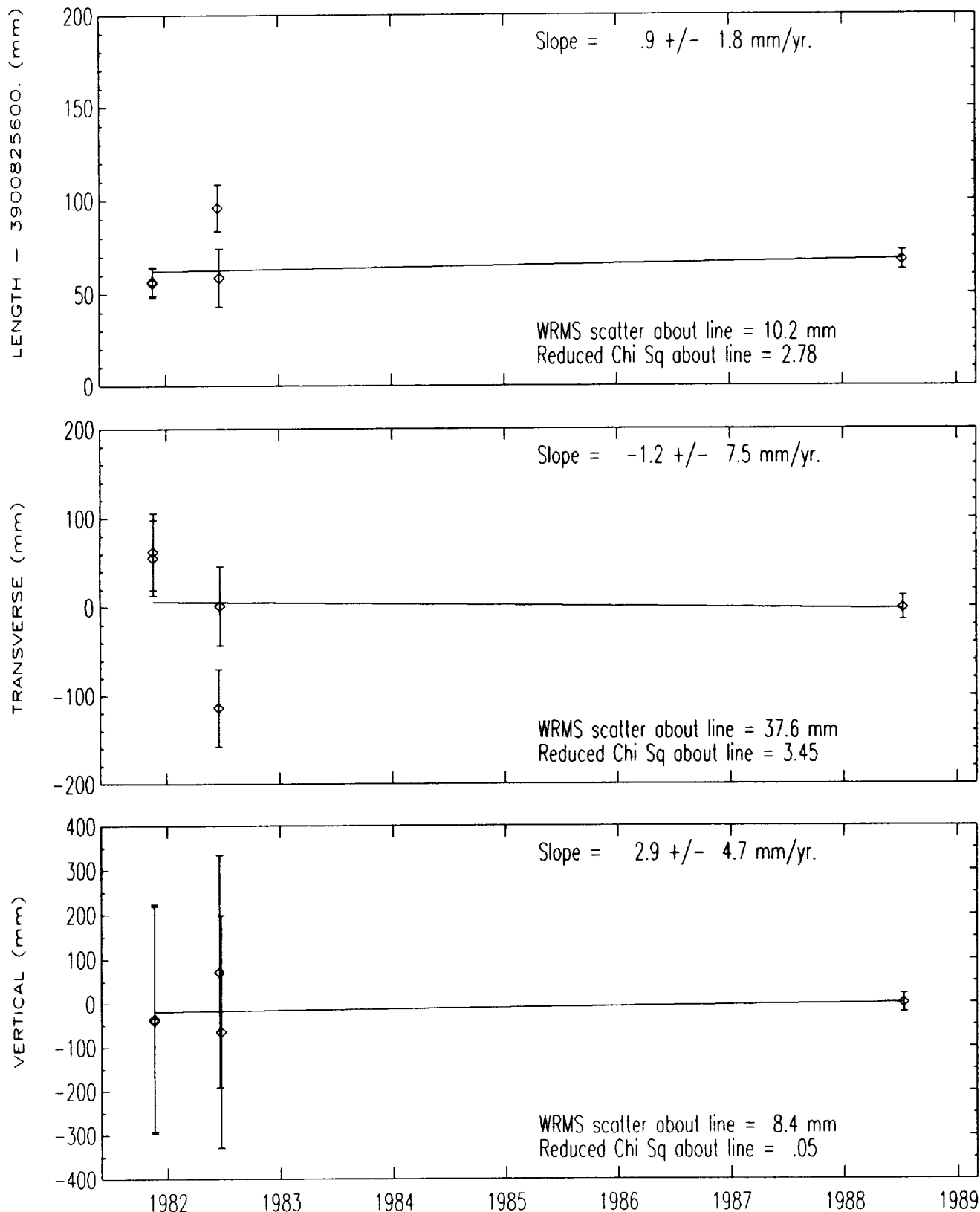
(Length = 603 km)

13 Observations



GOLDVENU TO HAYSTACK (Length = 3900 km)

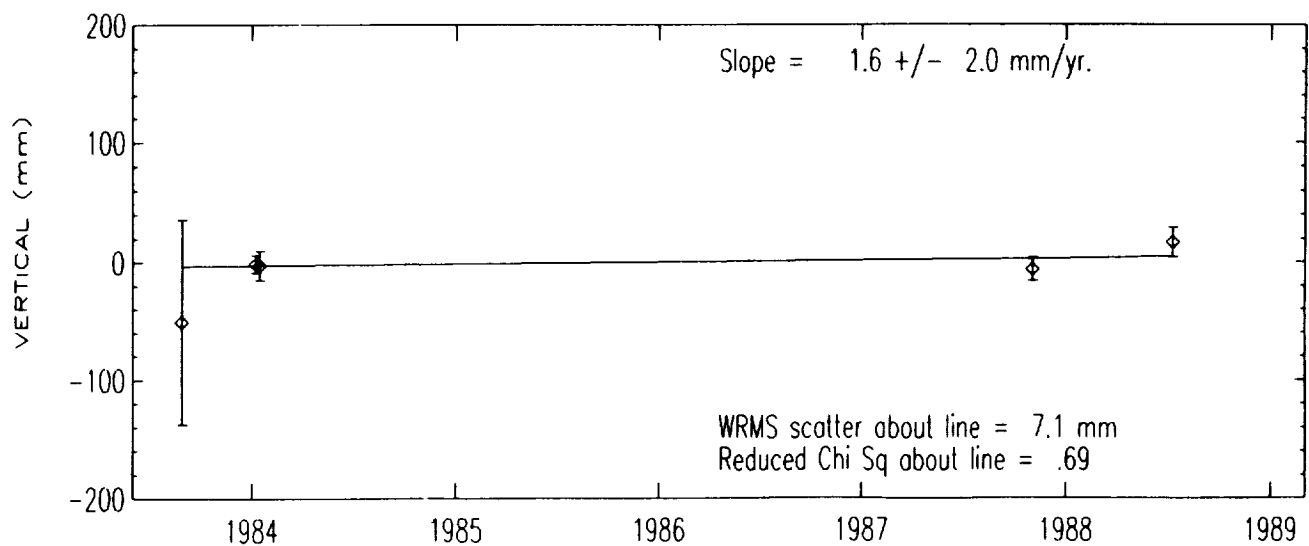
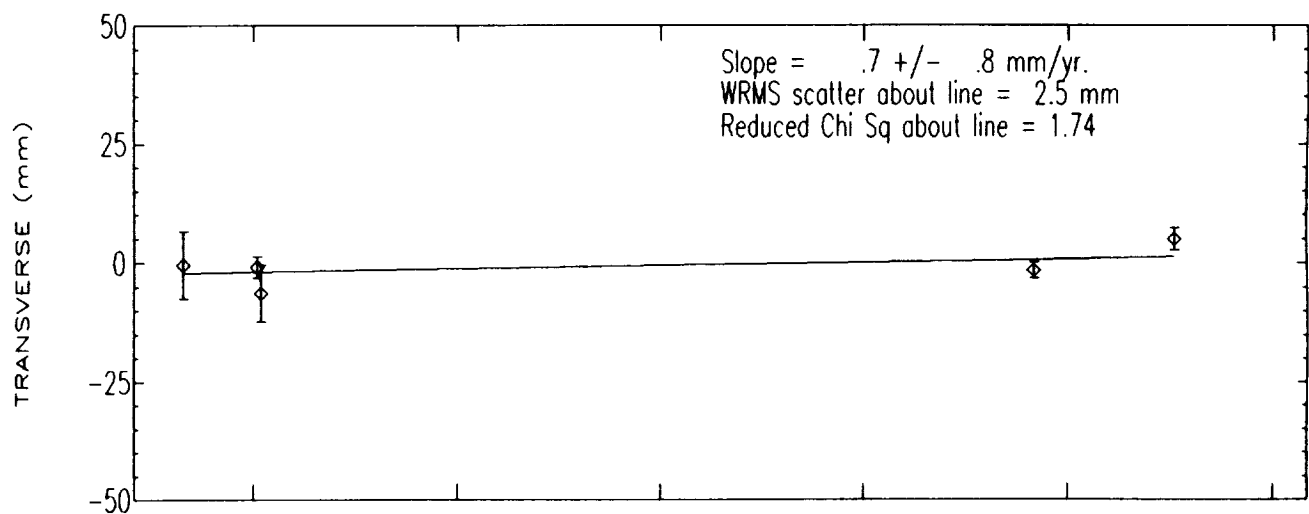
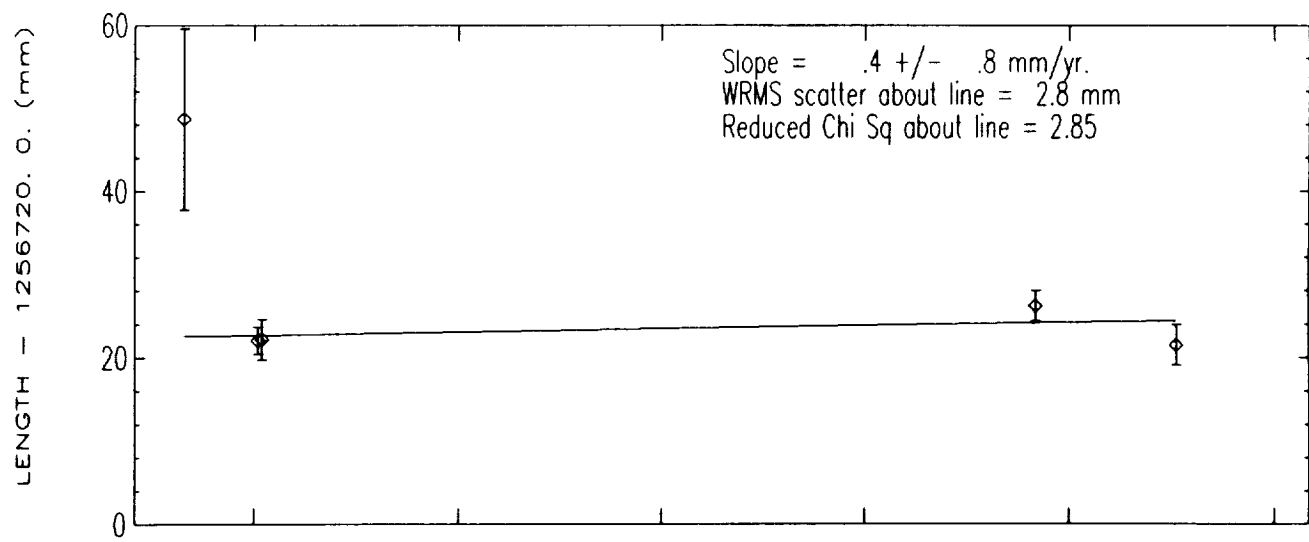
5 Observations



GOLDVENU TO MOJAVE12

(Length = 12 km)

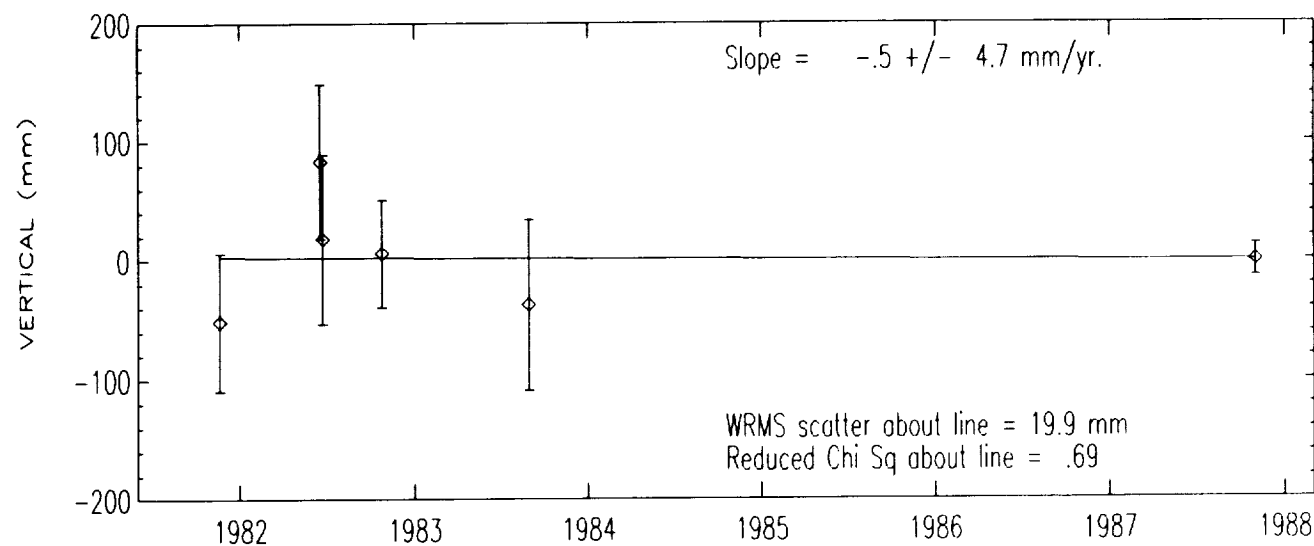
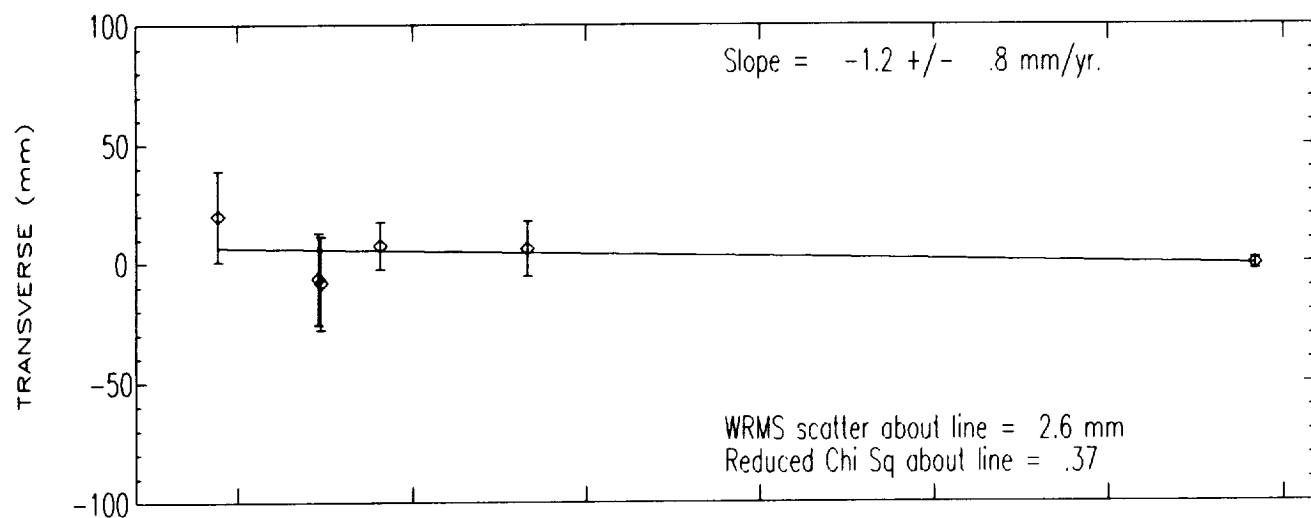
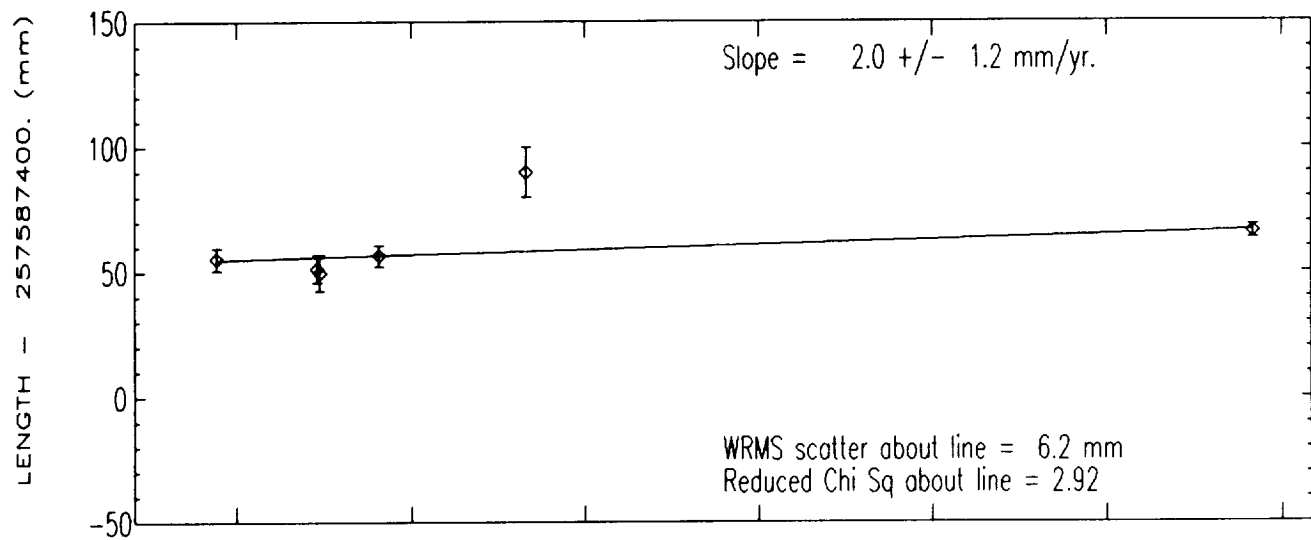
5 Observations



GOLDVENU TO OVRO 130

(Length = 257 km)

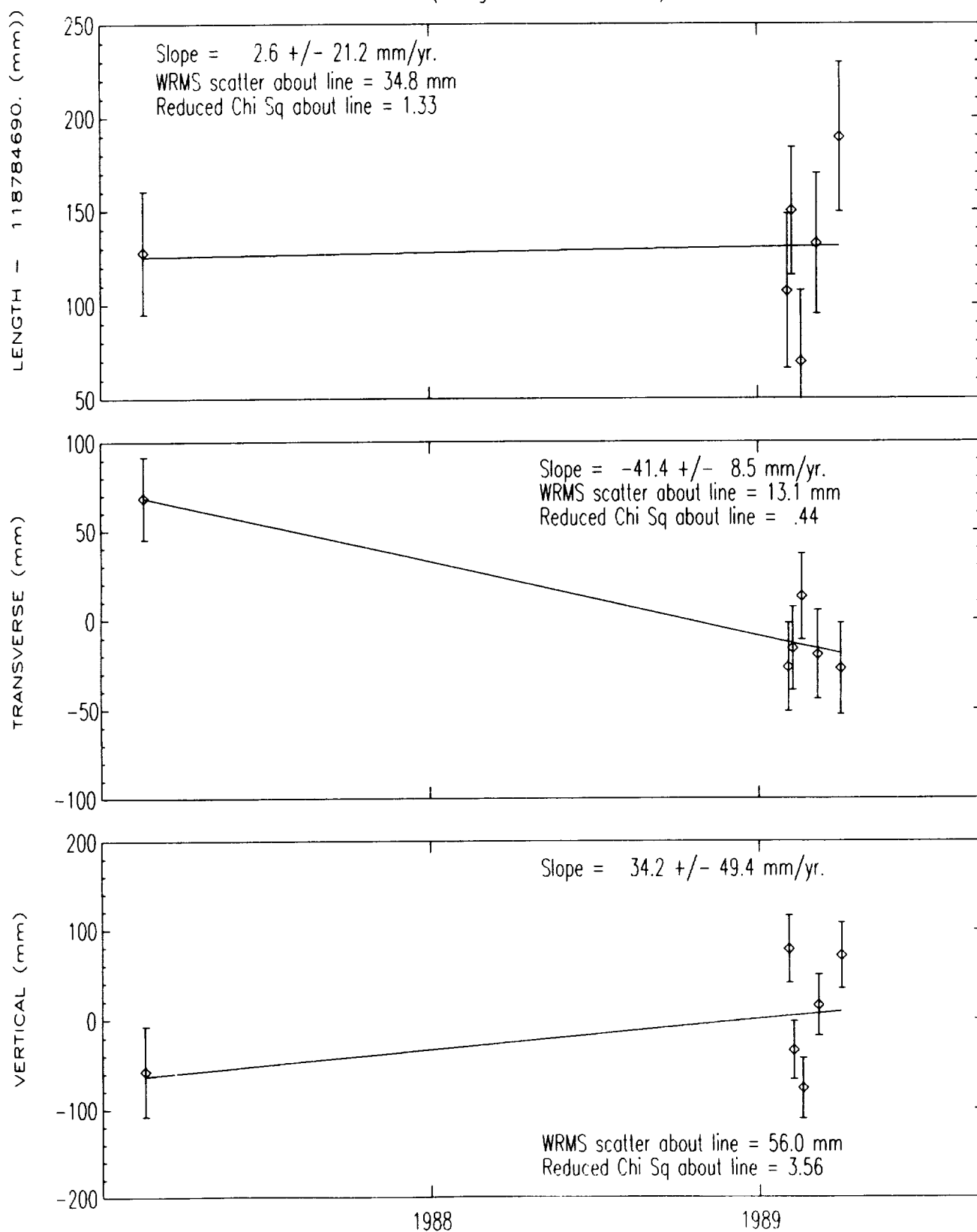
6 Observations

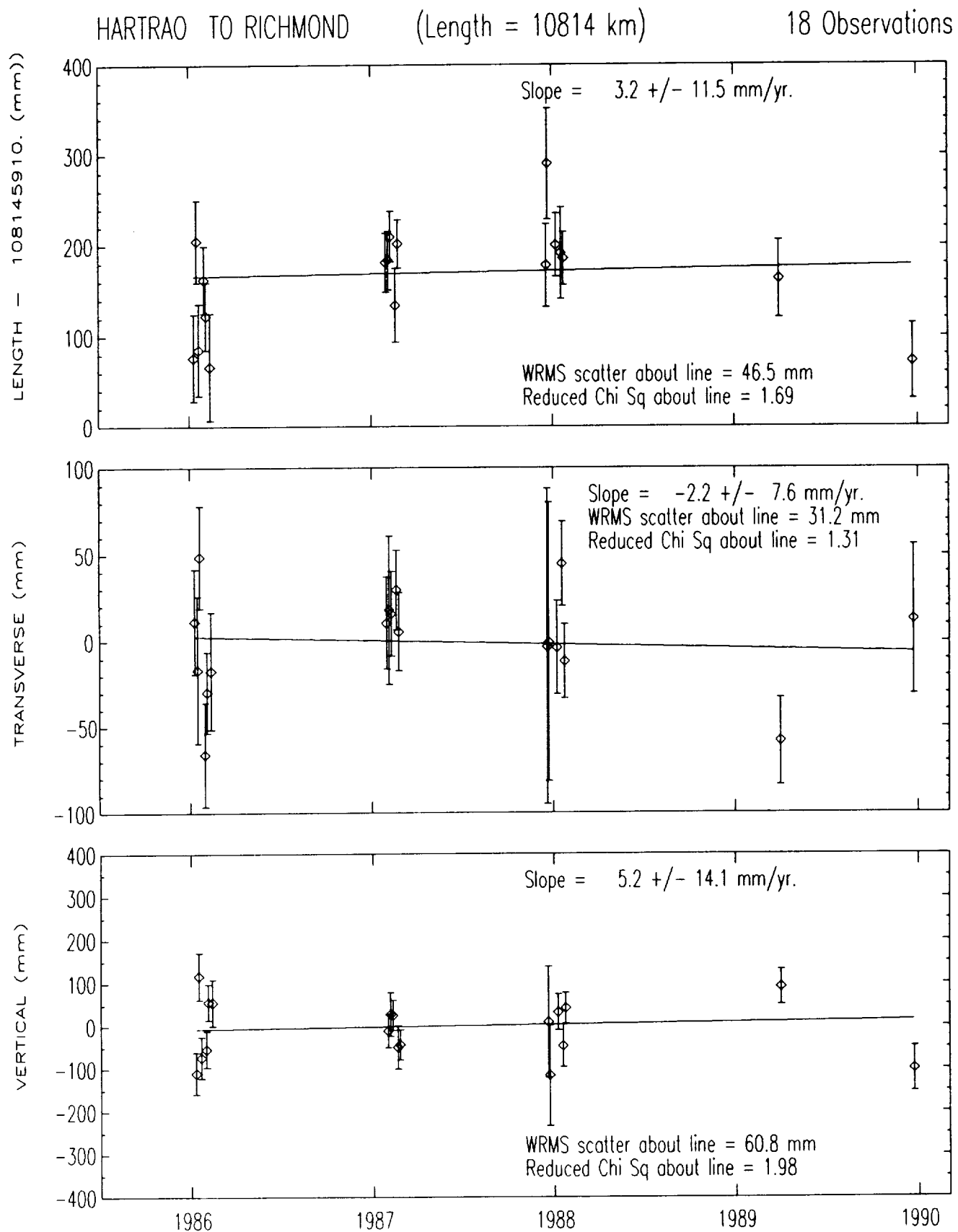


HARTRAO TO HRAS 085

(Length = 11878 km)

6 Observations

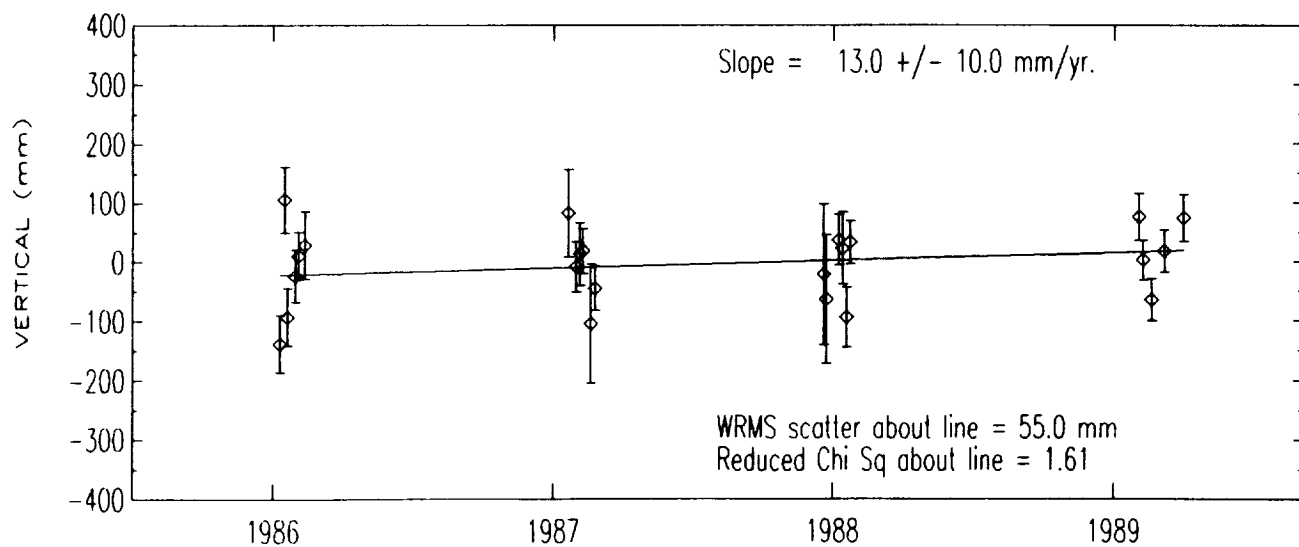
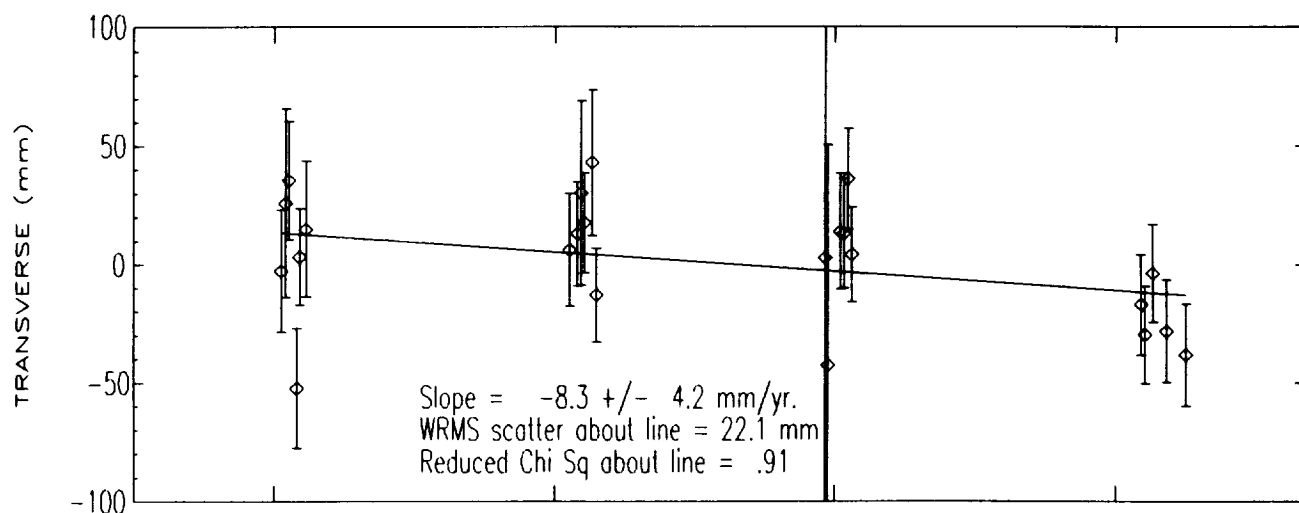
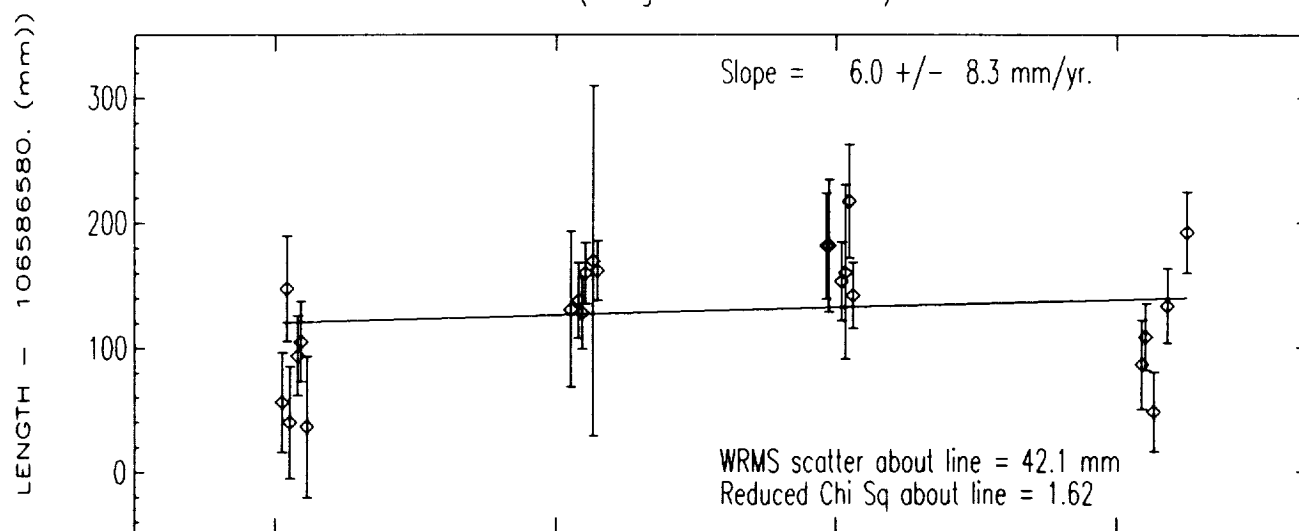




HARTRAO TO WESTFORD

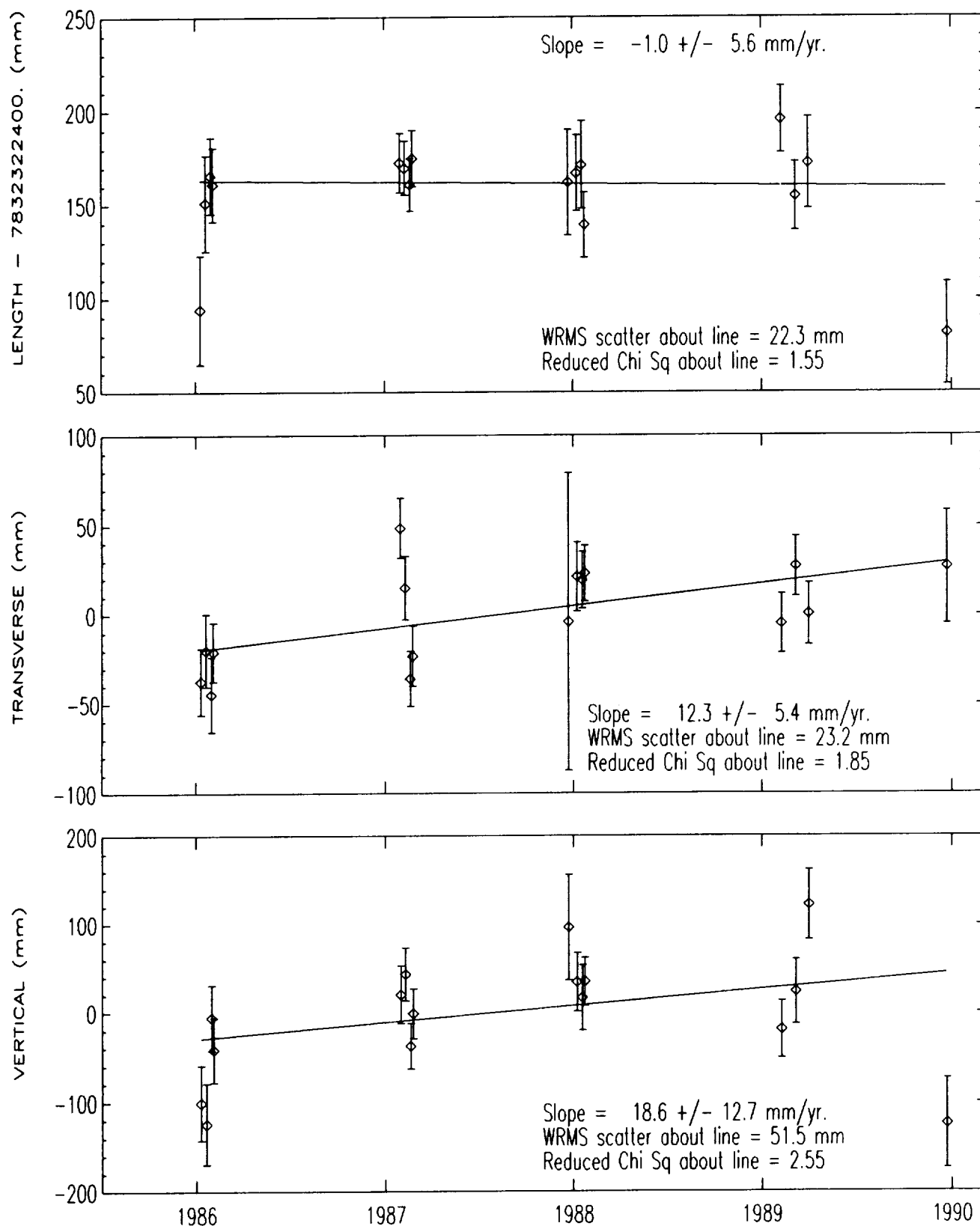
(Length = 10658 km)

23 Observations



HARTRAO TO WETTZELL (Length = 7832 km)

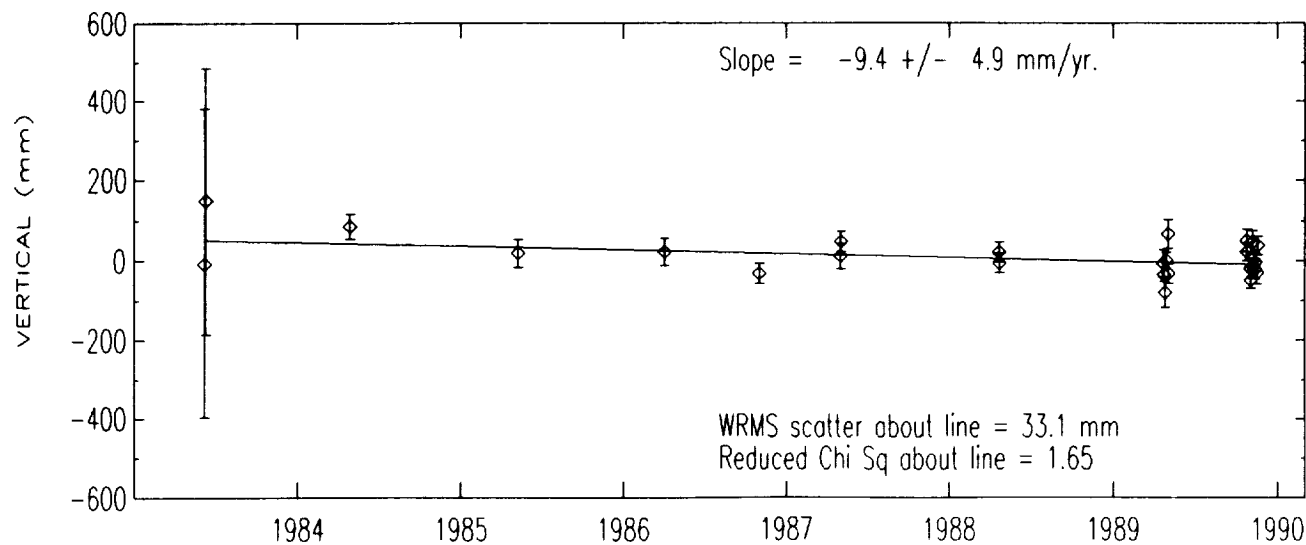
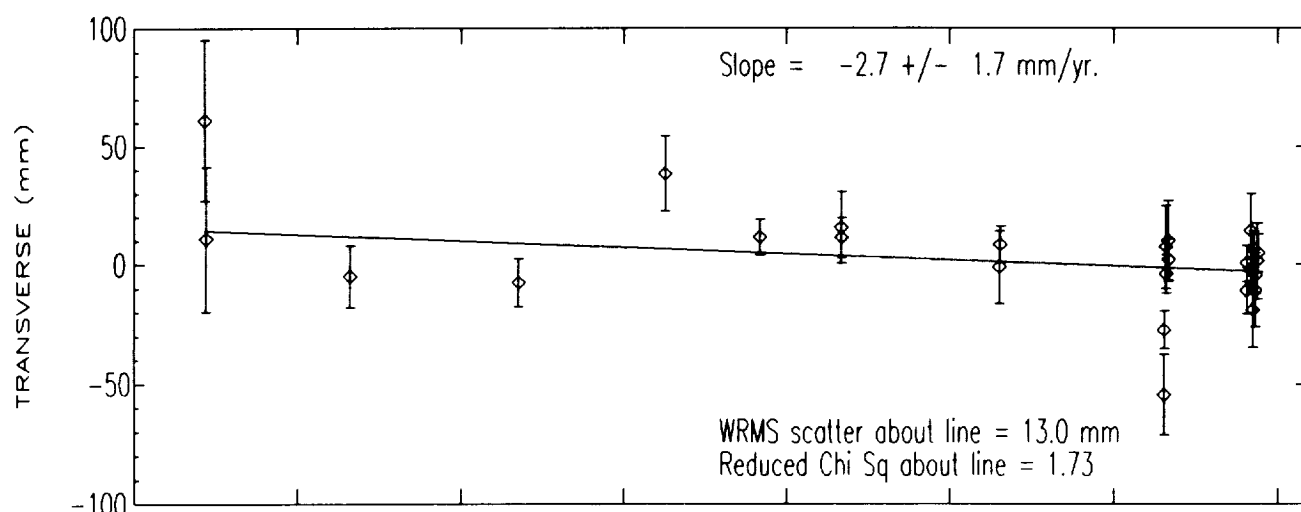
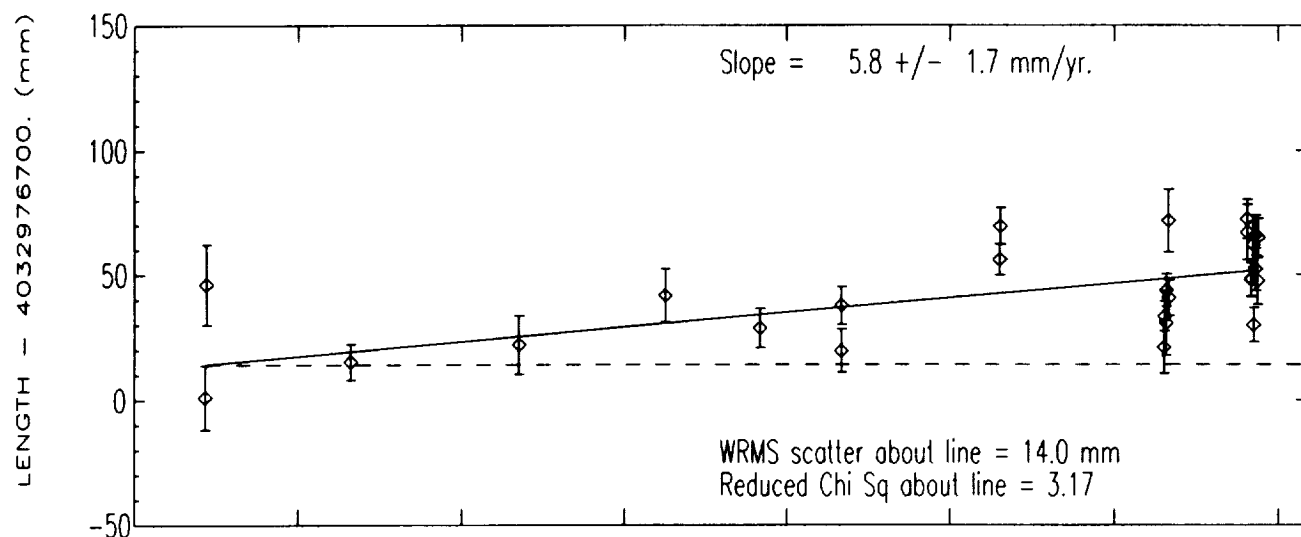
16 Observations



HATCREEK TO HAYSTACK

(Length = 4032 km)

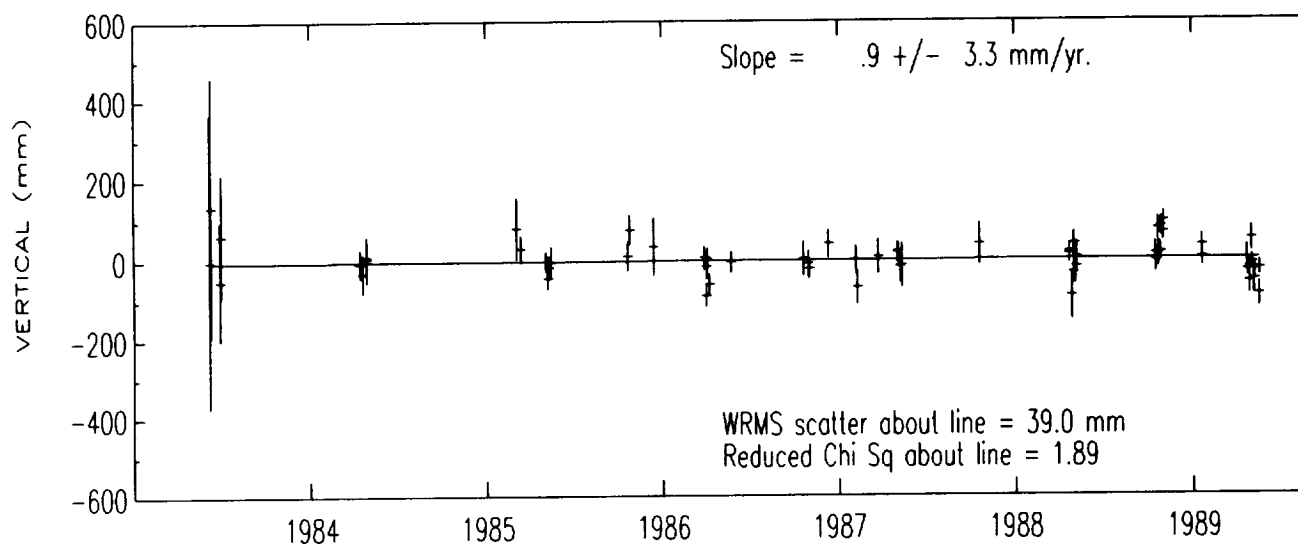
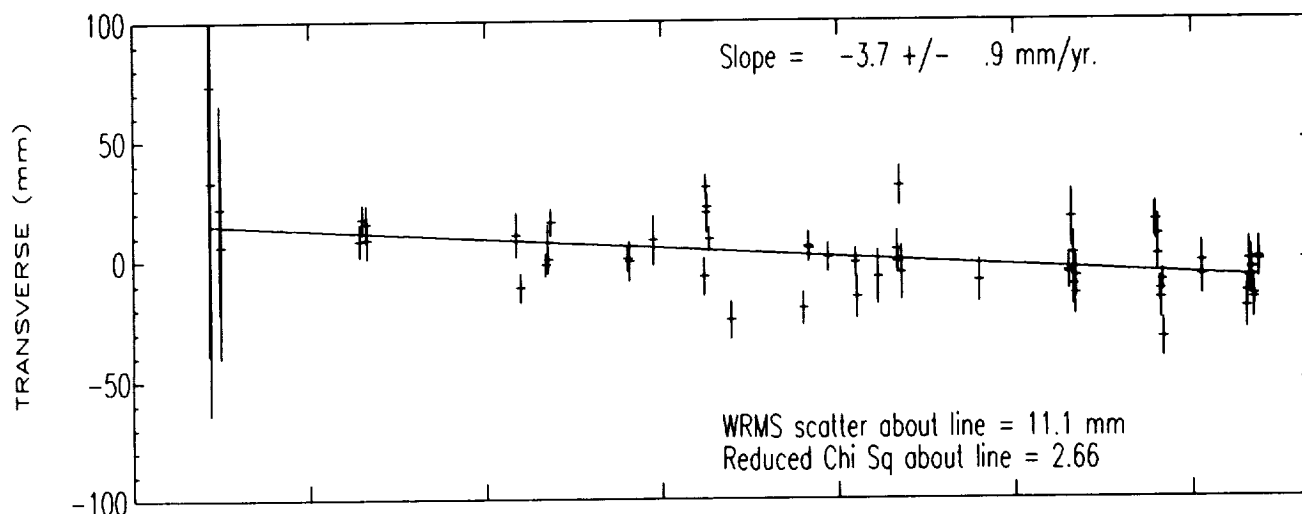
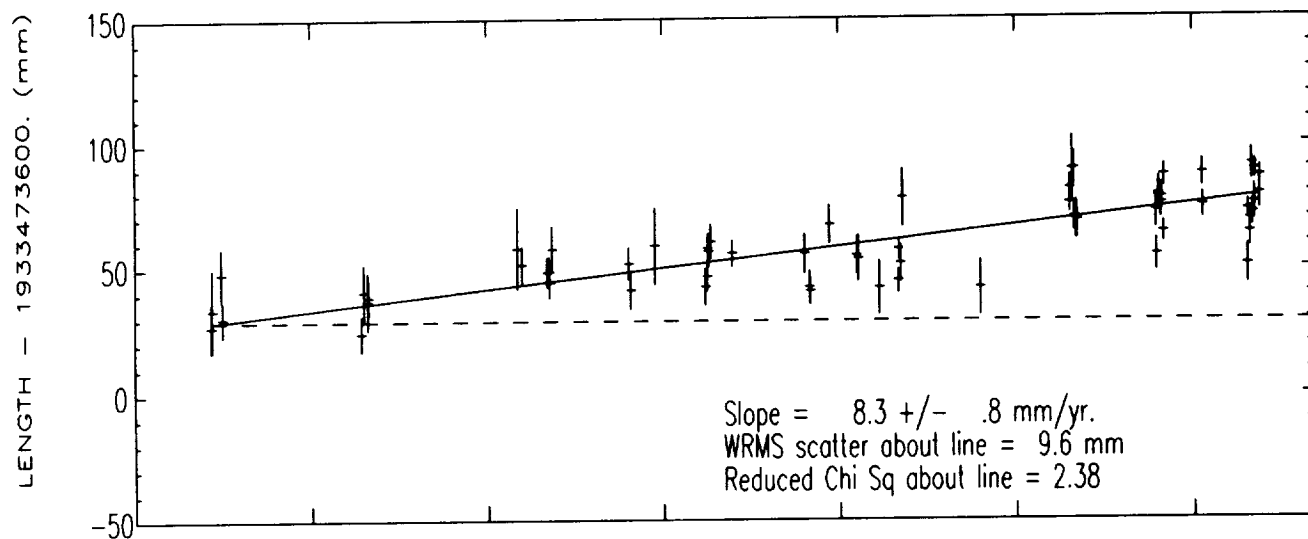
26 Observations



HATCREEK TO HRAS 085

(Length = 1933 km)

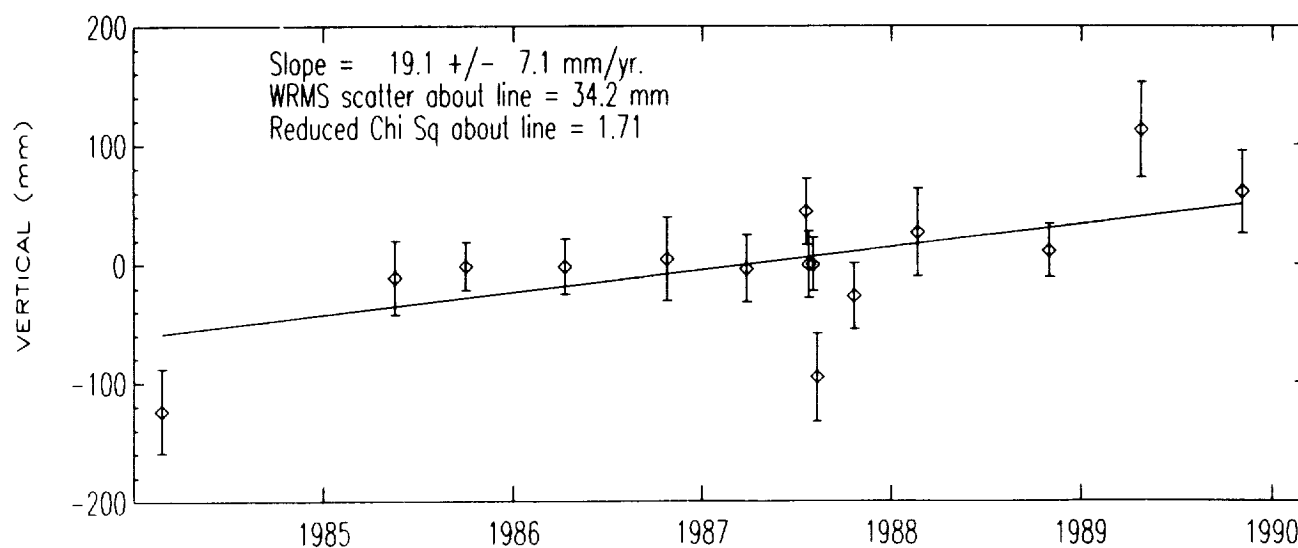
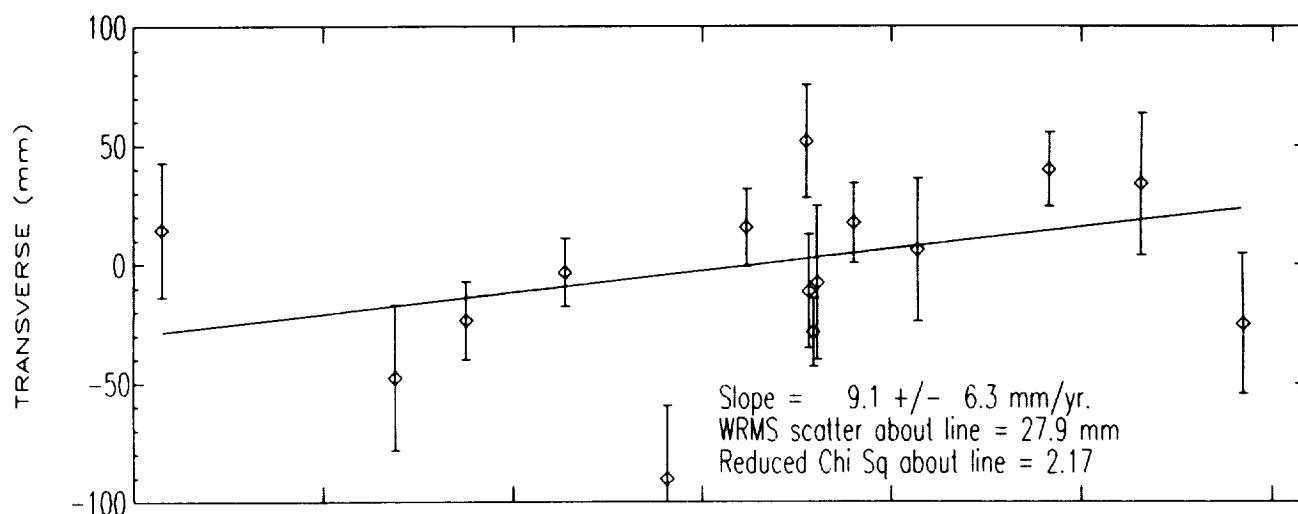
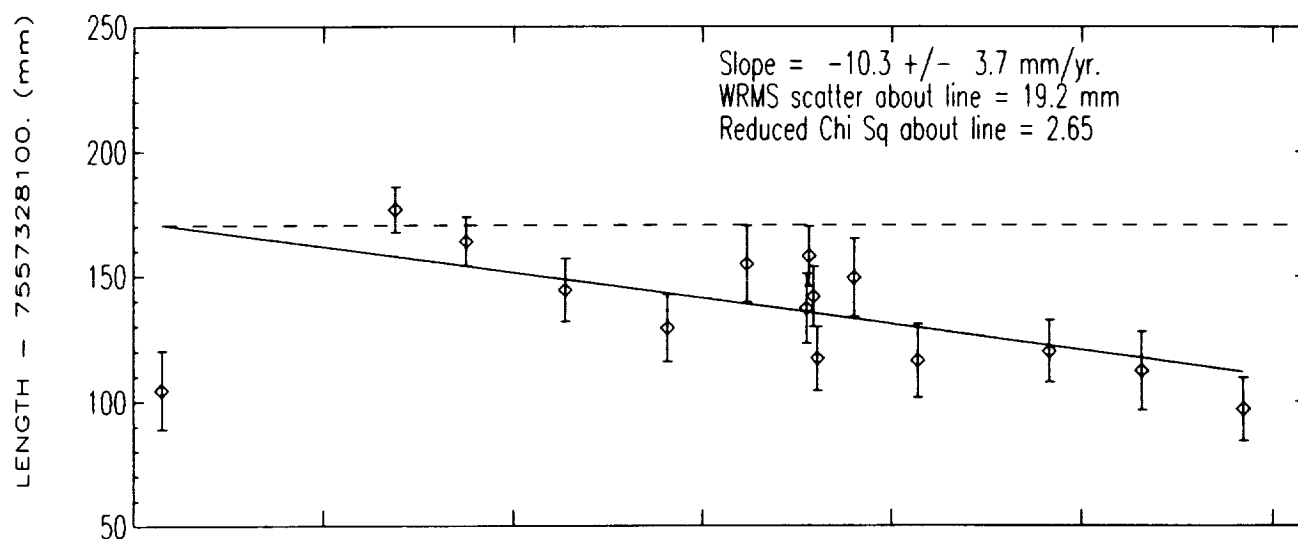
62 Observations



HATCREEK TO KASHIMA

(Length = 7557 km)

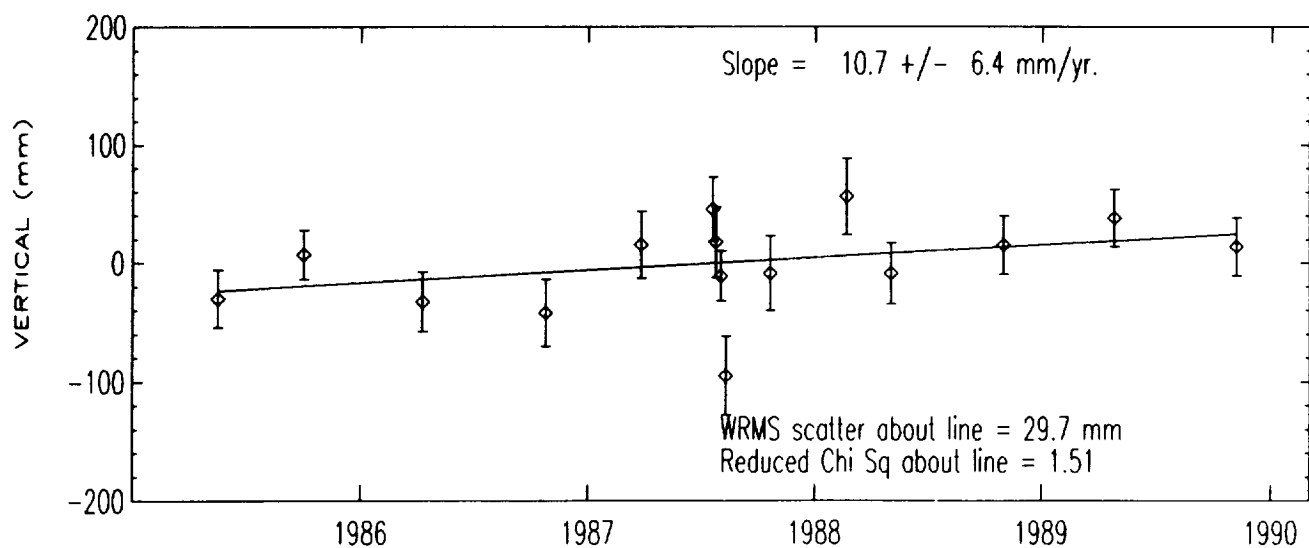
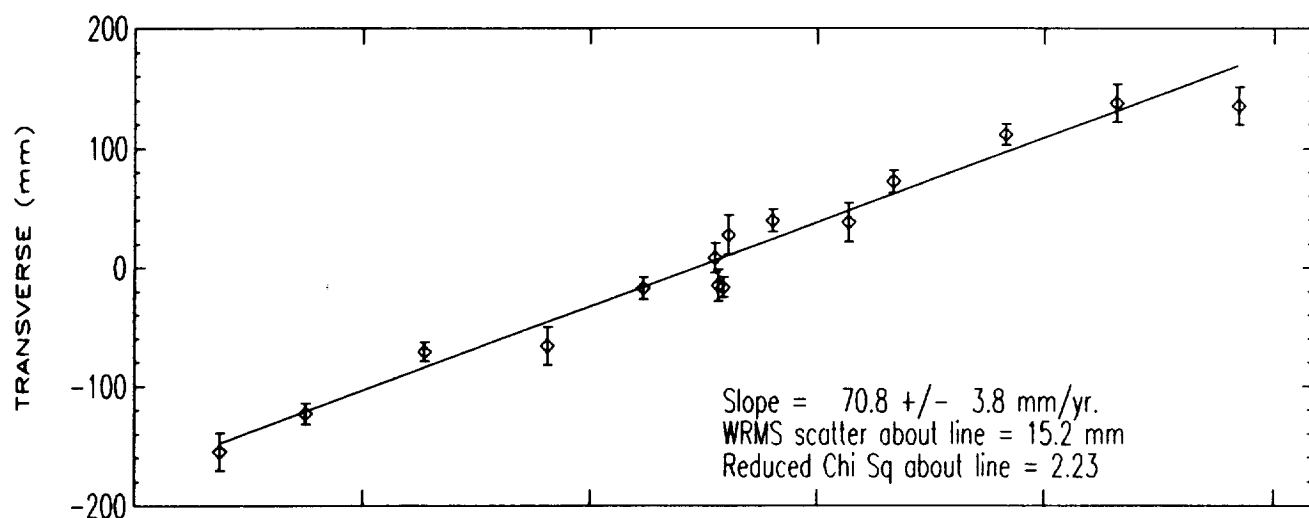
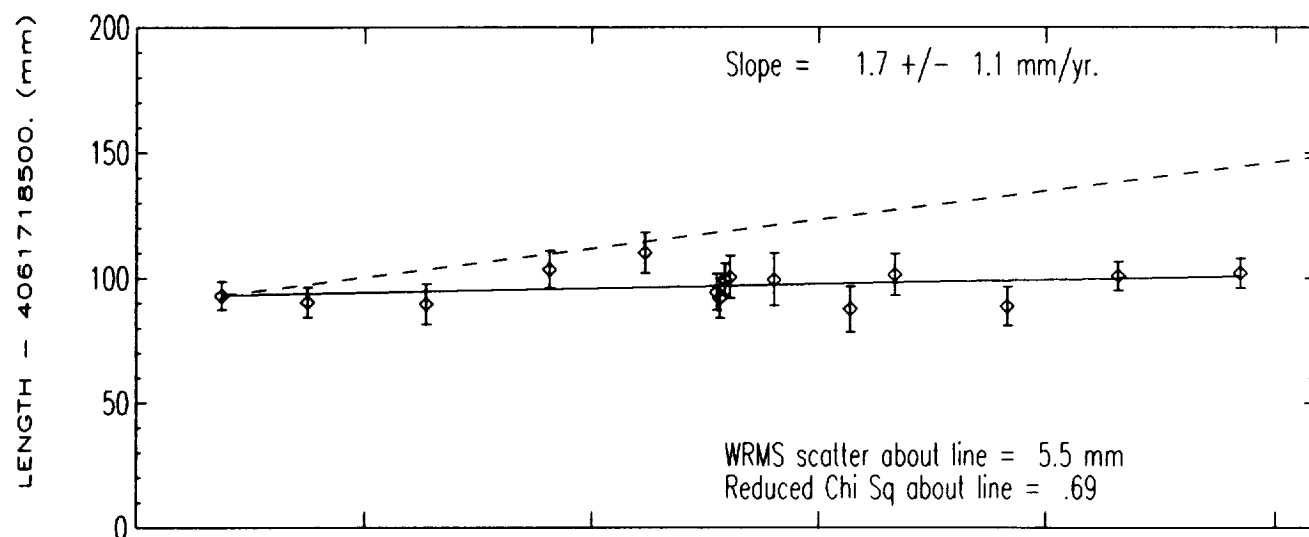
15 Observations



HATCREEK TO KAUAI

(Length = 4061 km)

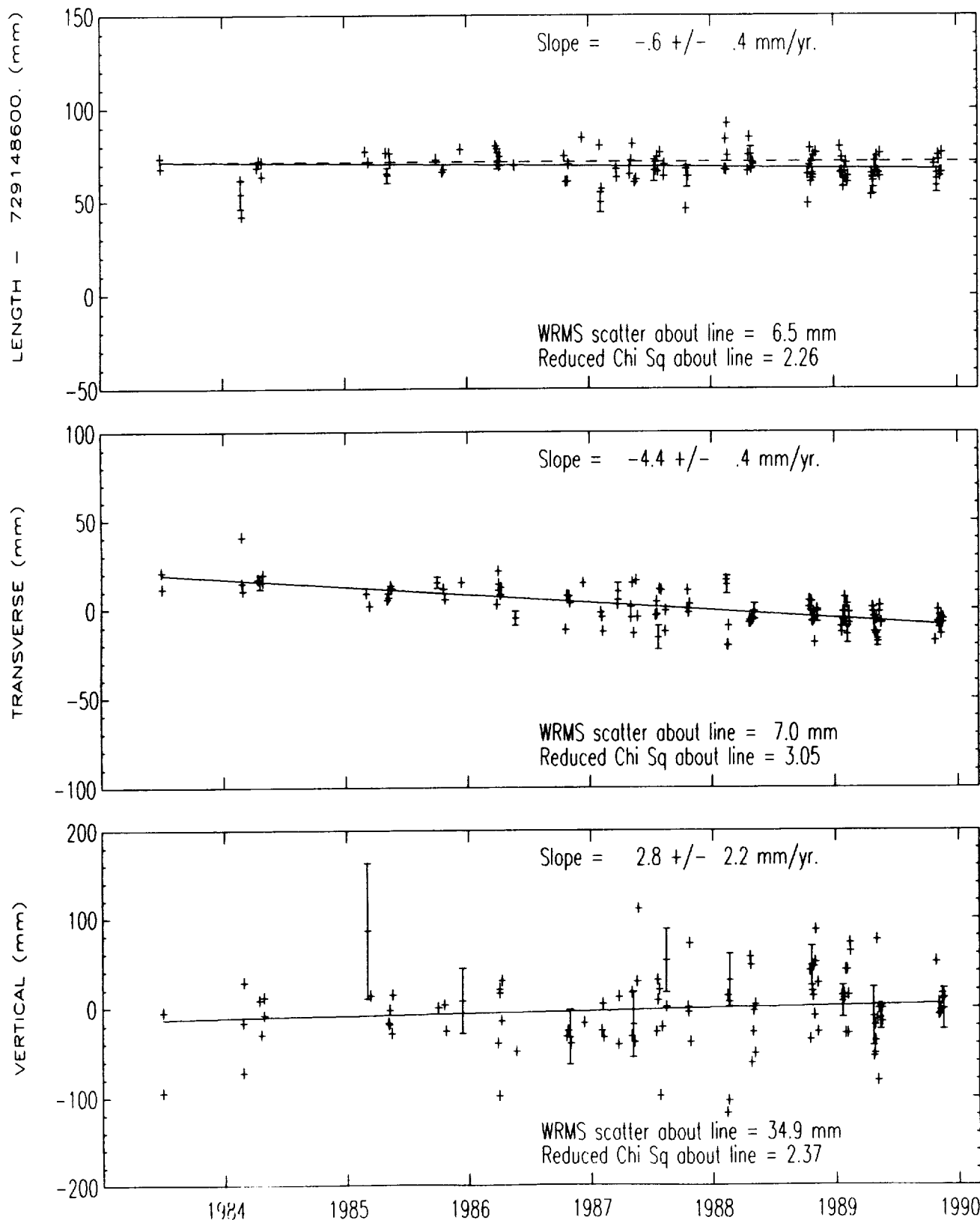
15 Observations



HATCREEK TO MOJAVE12

(Length = 729 km)

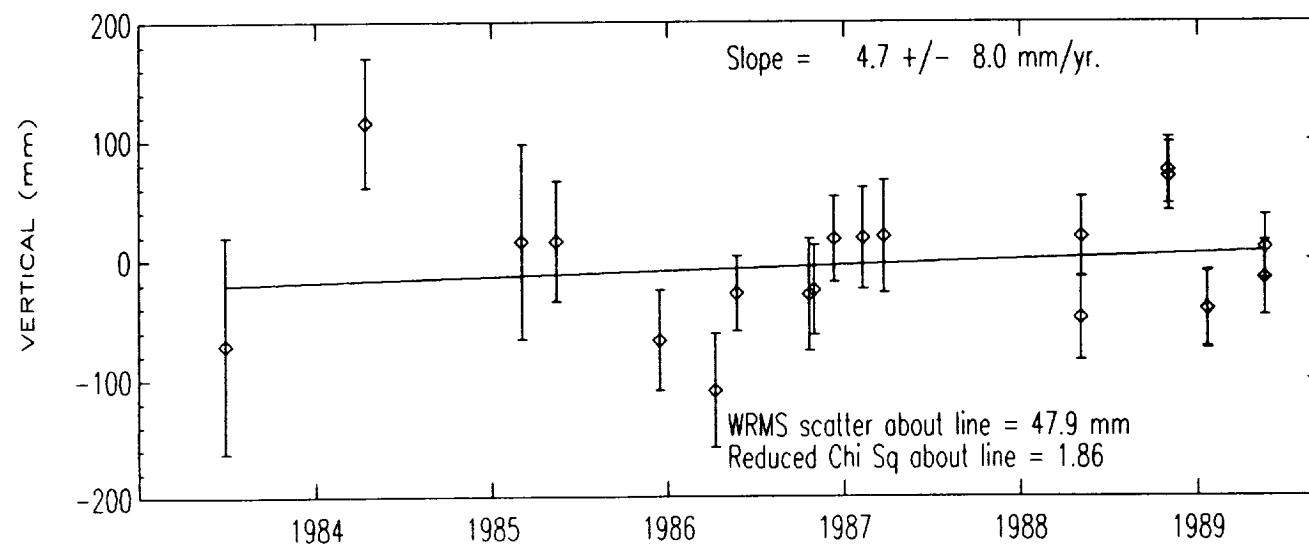
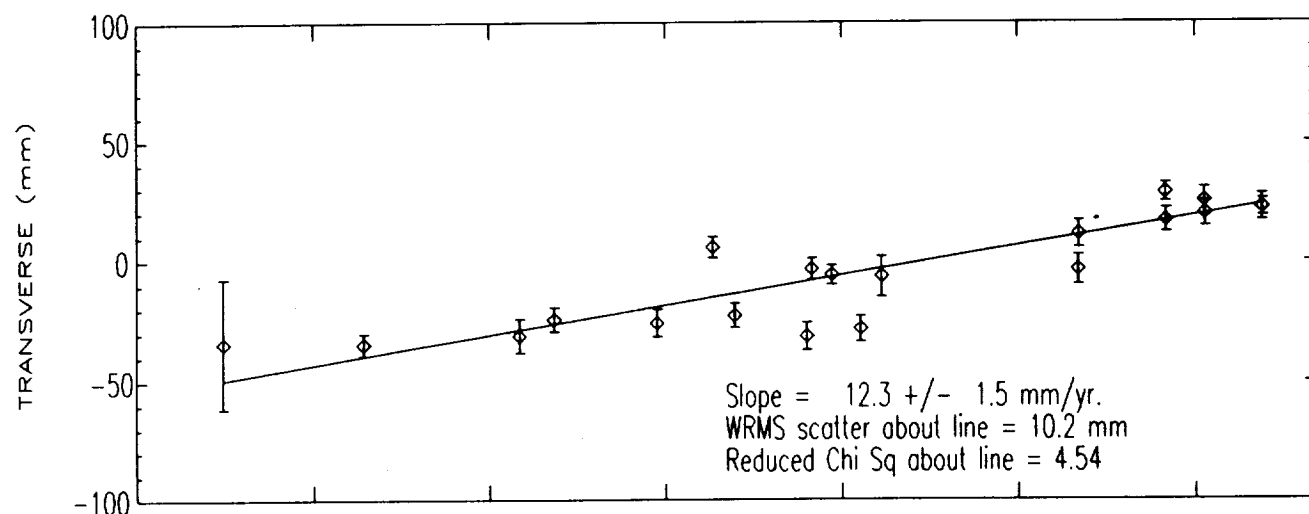
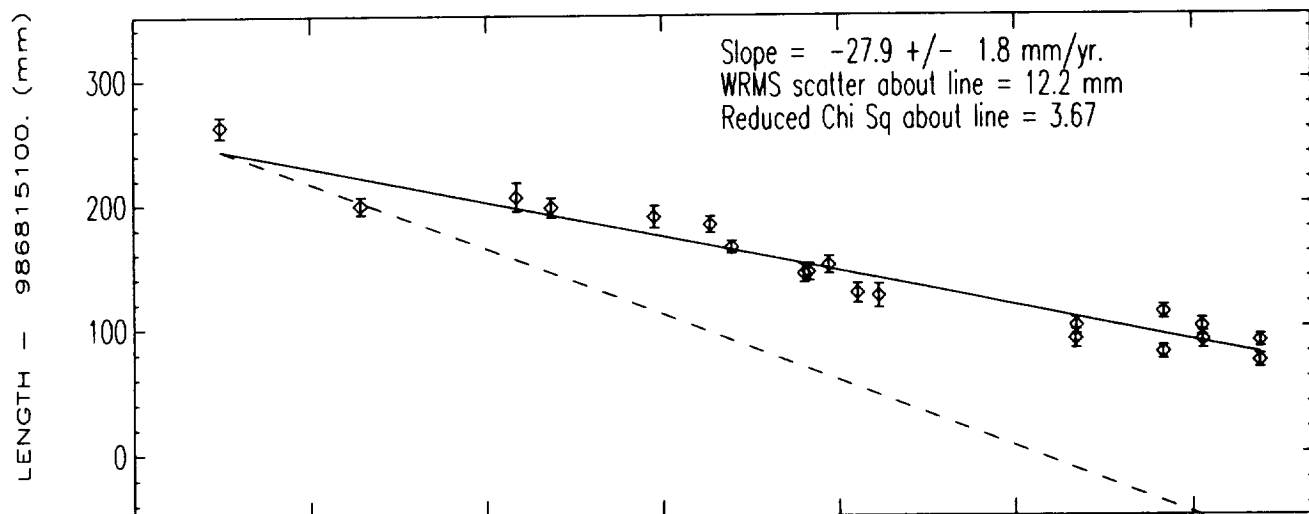
111 Observations



HATCREEK TO MON PEAK

(Length = 986 km)

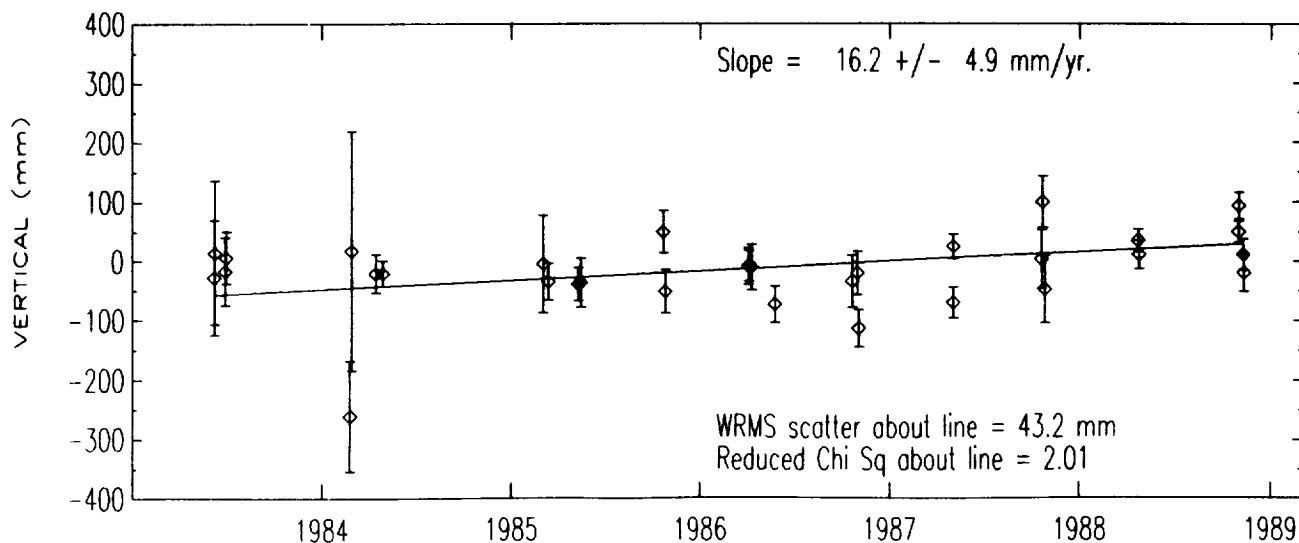
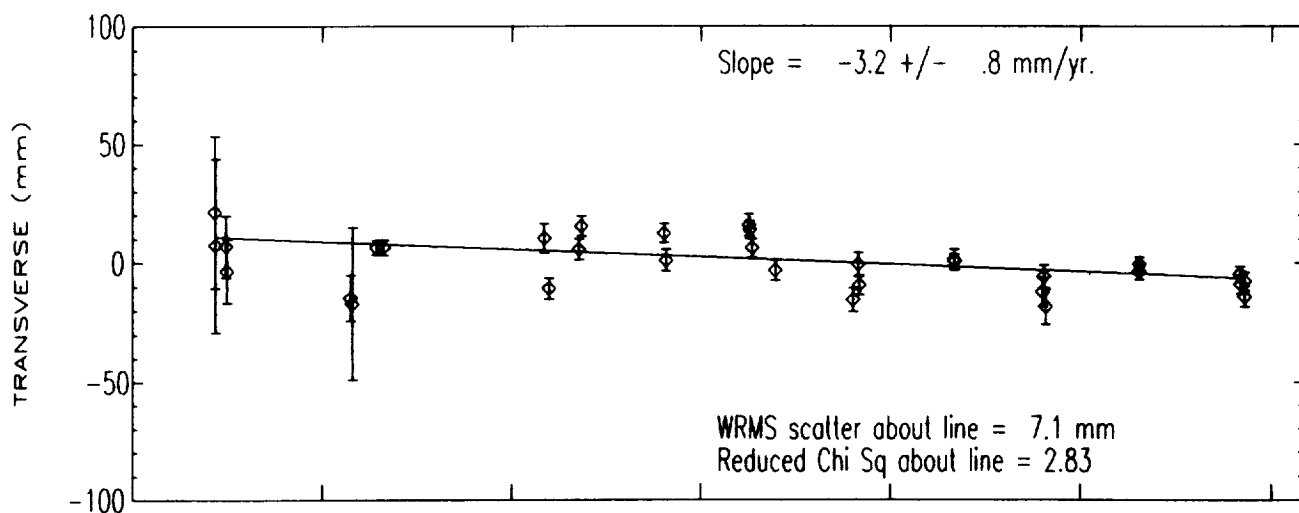
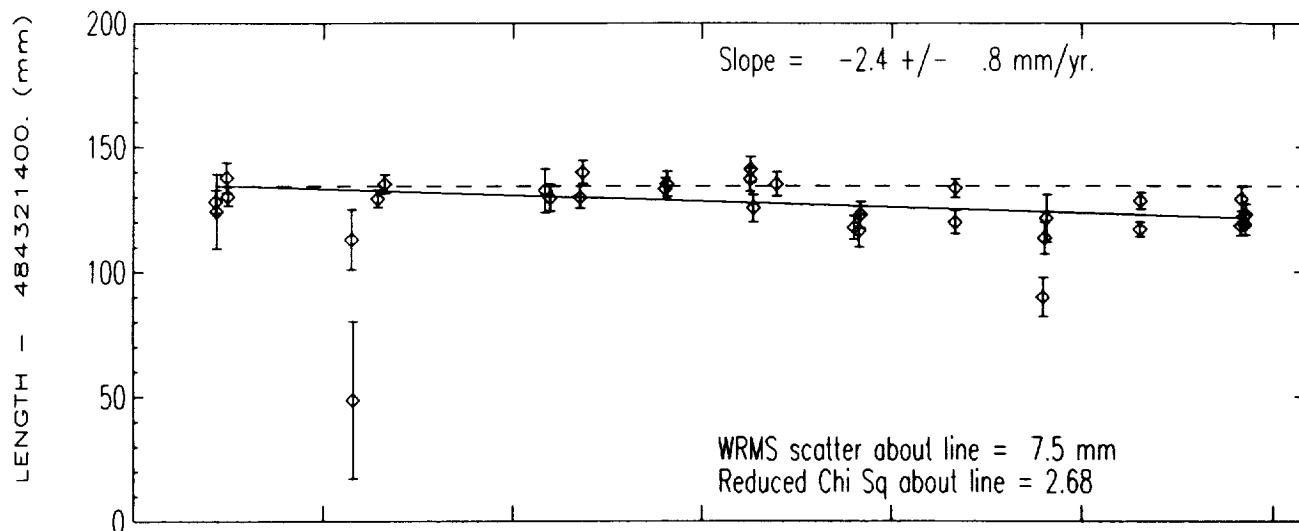
20 Observations



HATCREEK TO OVRO 130

(Length = 484 km)

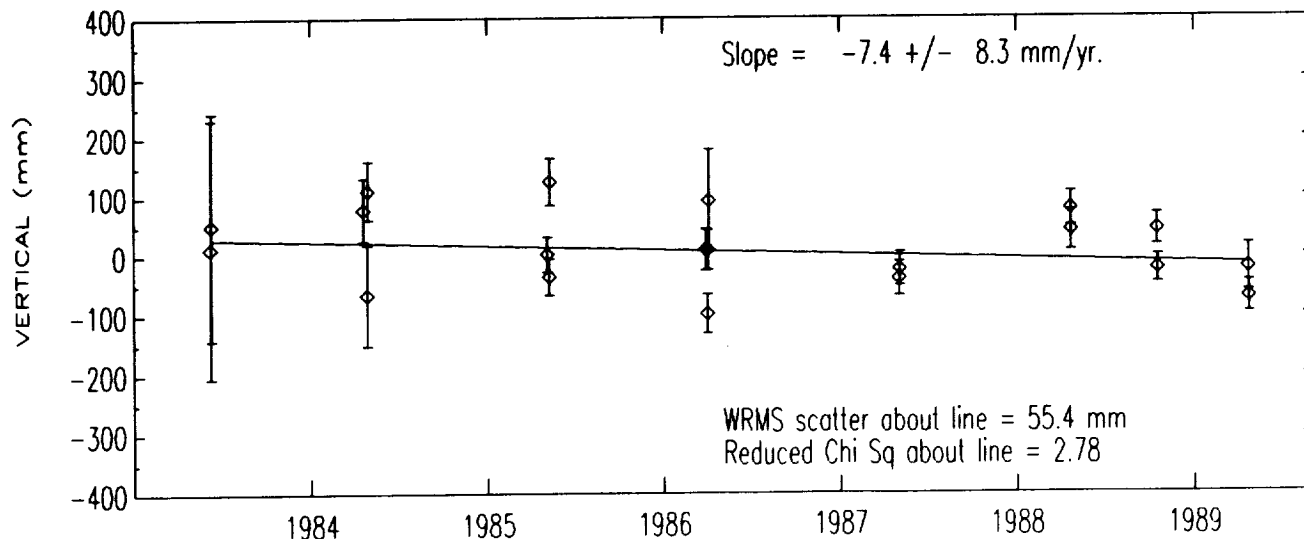
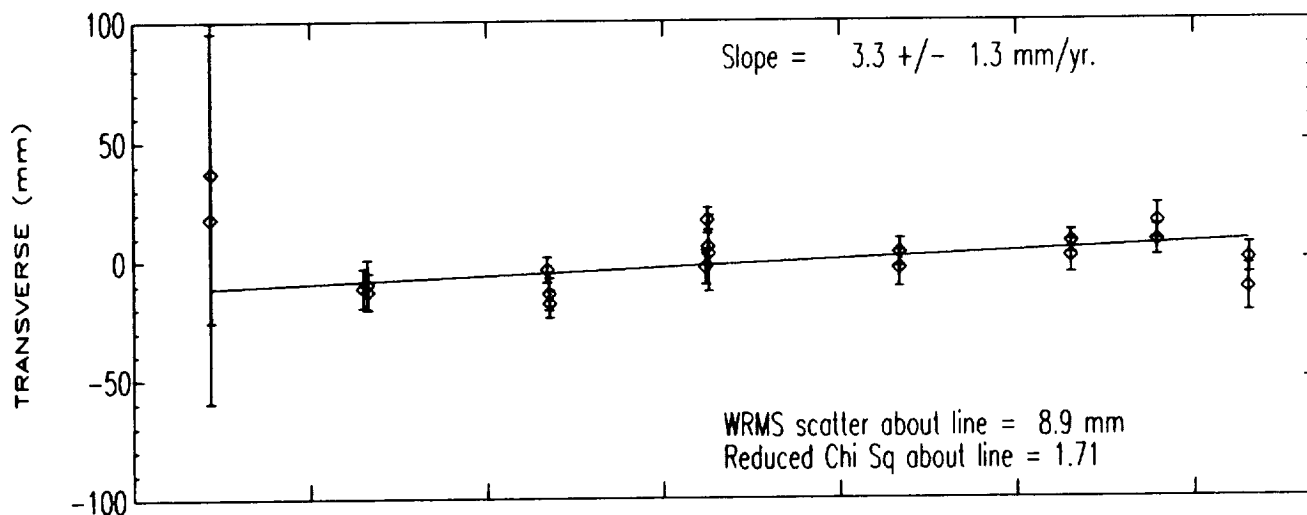
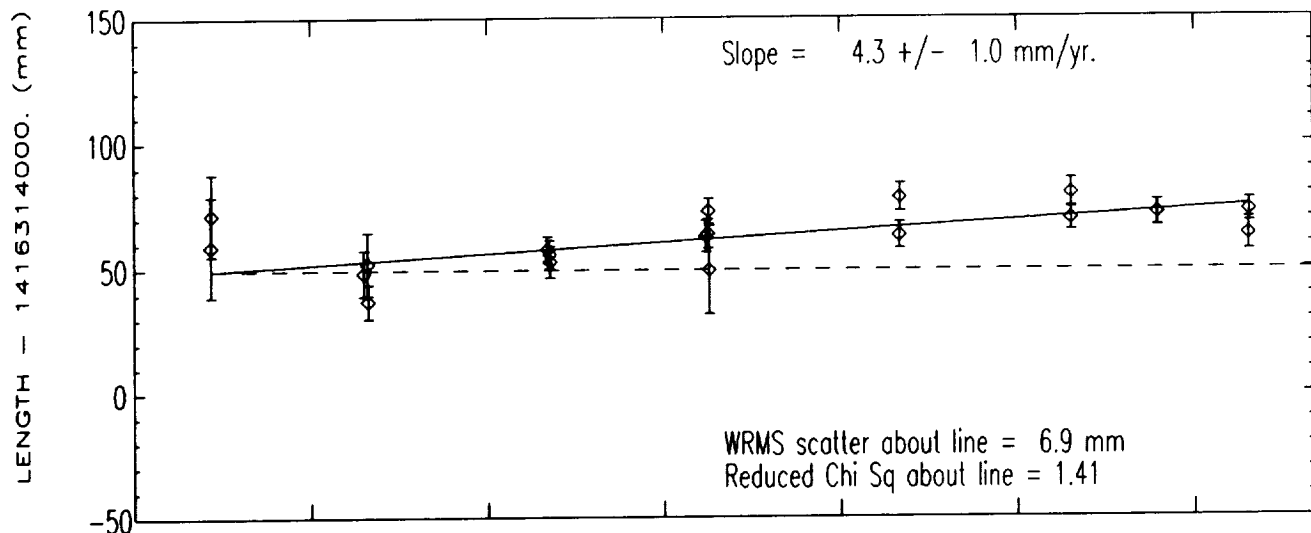
32 Observations



HATCREEK TO PLATTVIL

(Length = 1416 km)

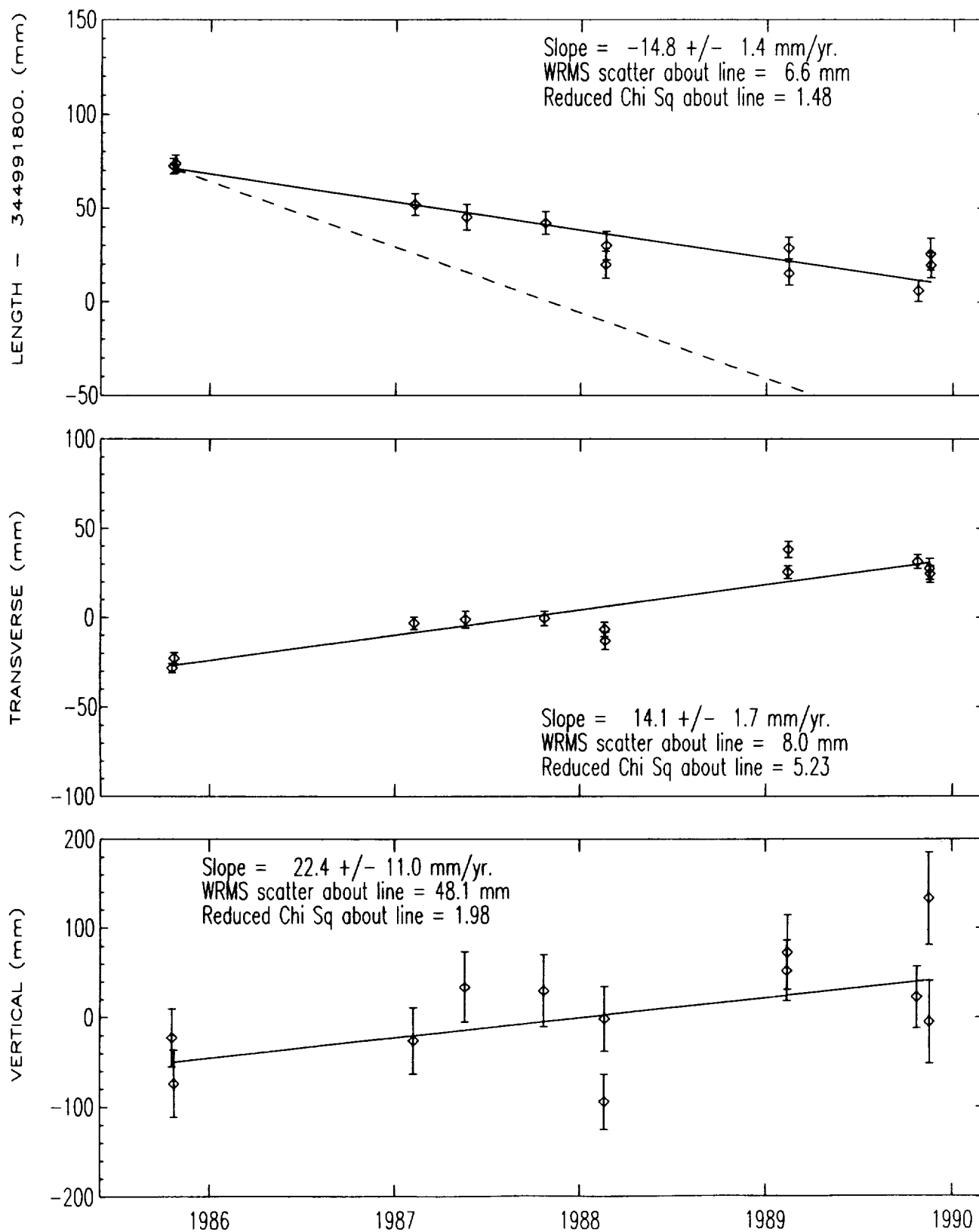
20 Observations



HATCREEK TO PRESIDIO

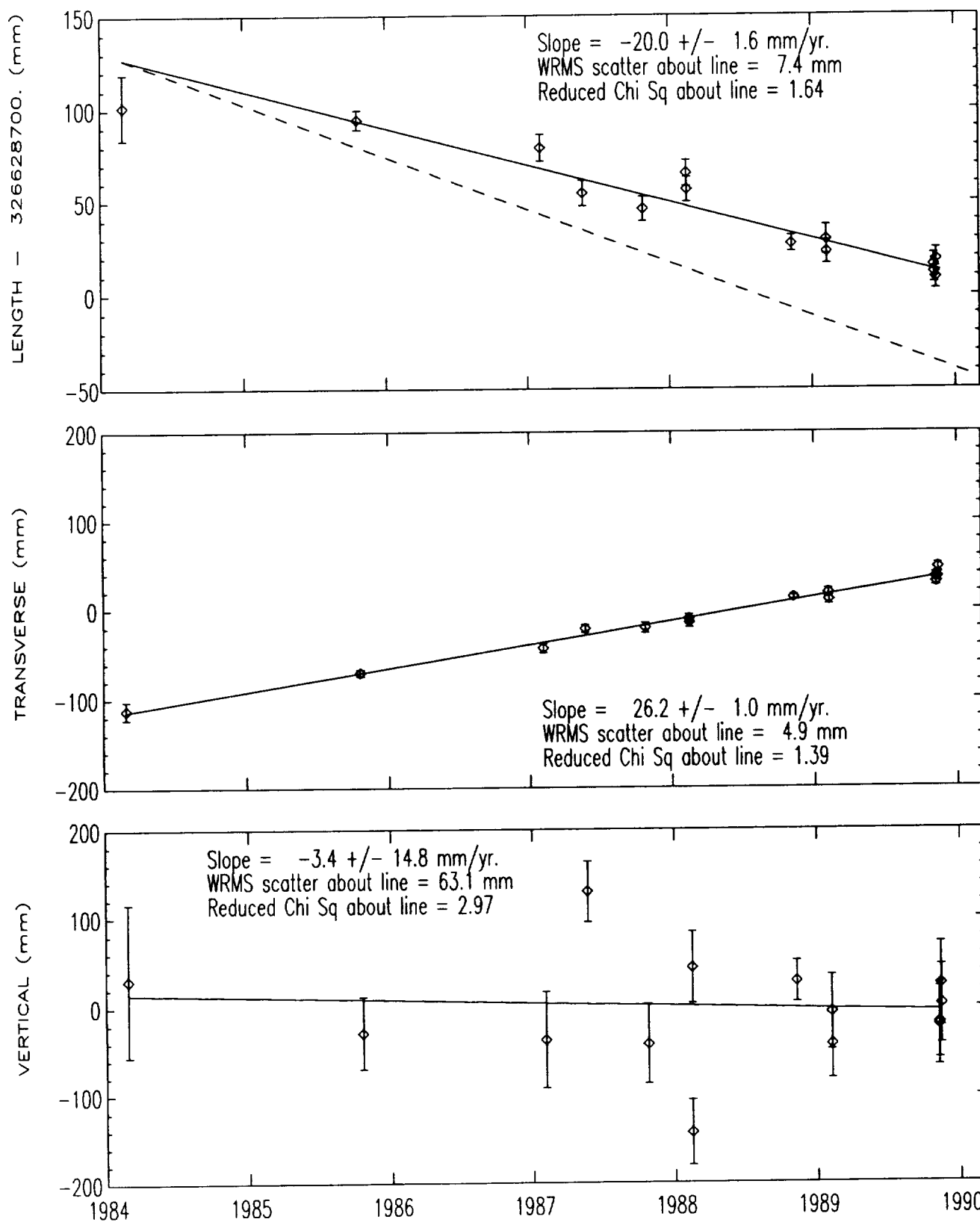
(Length = 344 km)

12 Observations



HATCREEK TO PT REYES (Length = 326 km)

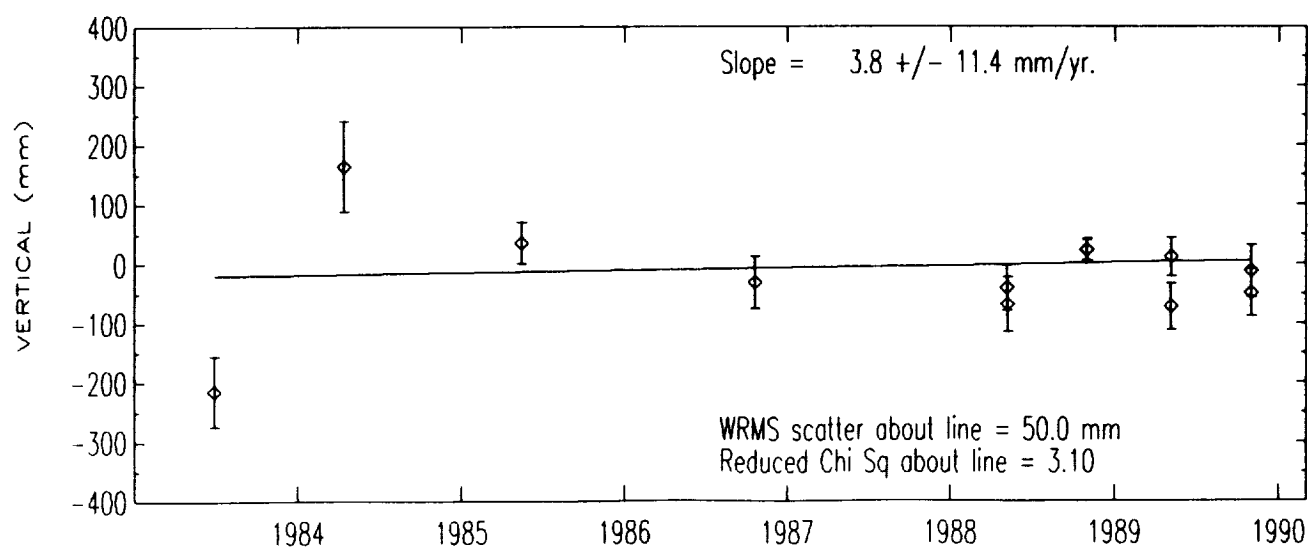
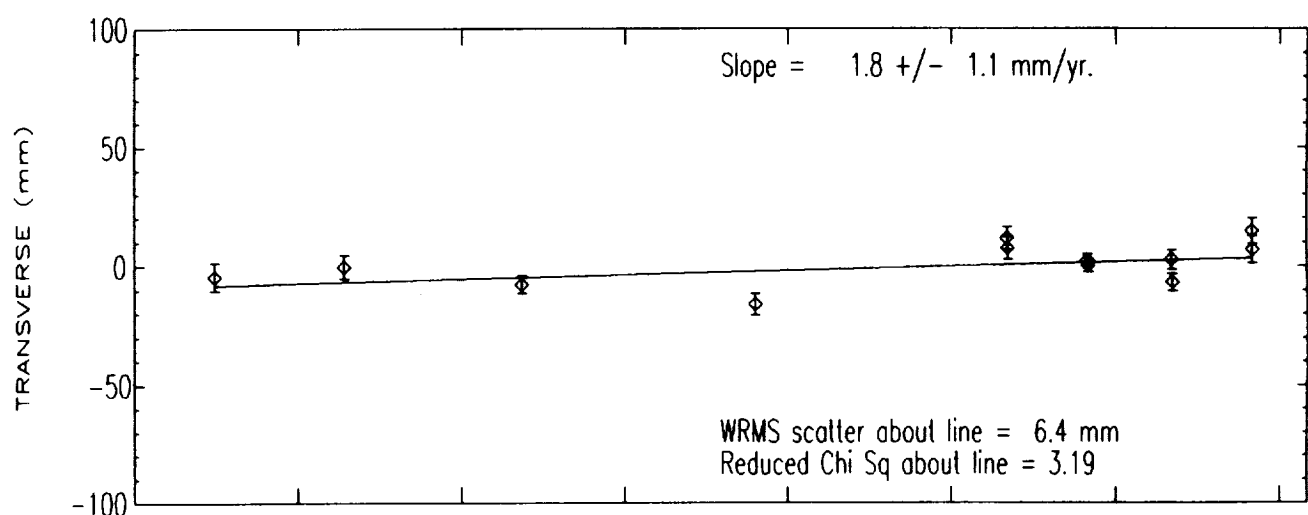
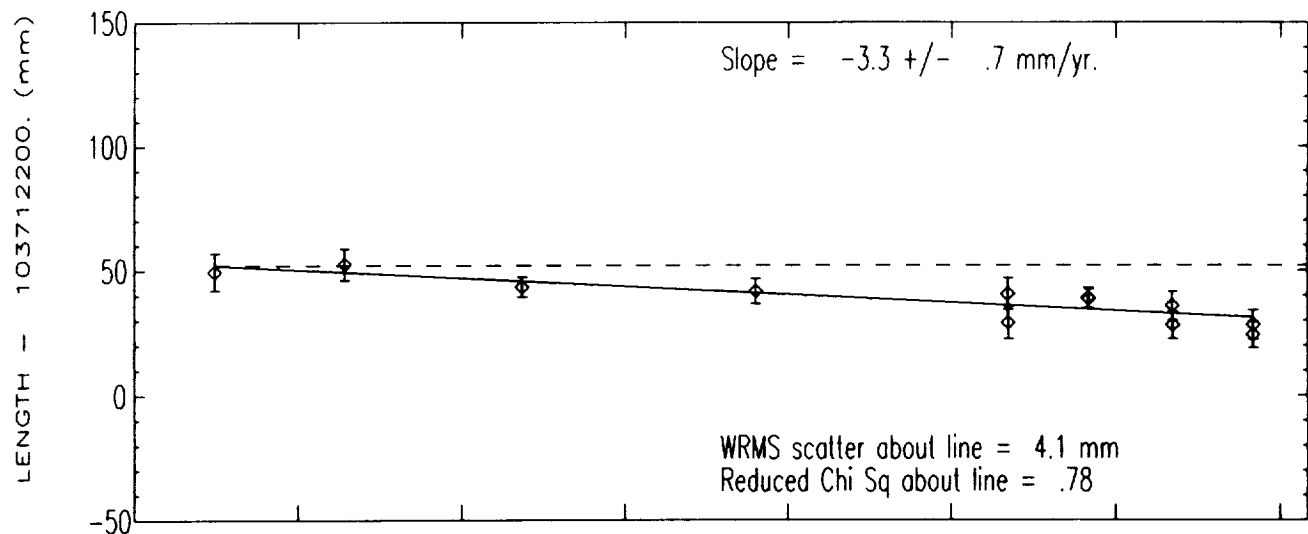
14 Observations



HATCREEK TO QUINCY

(Length = 103 km)

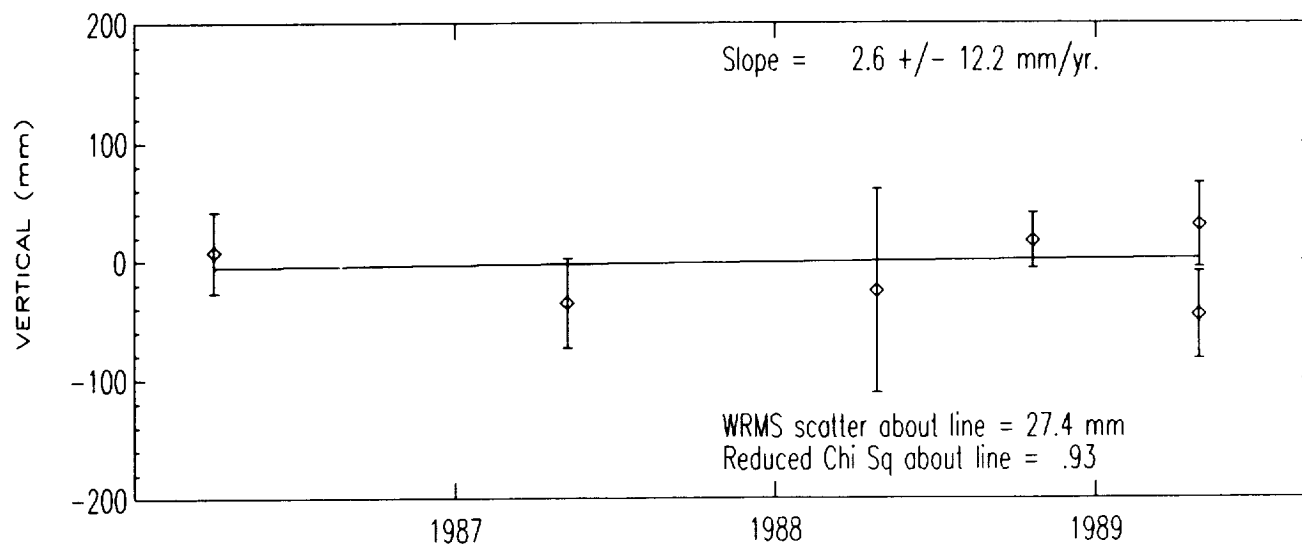
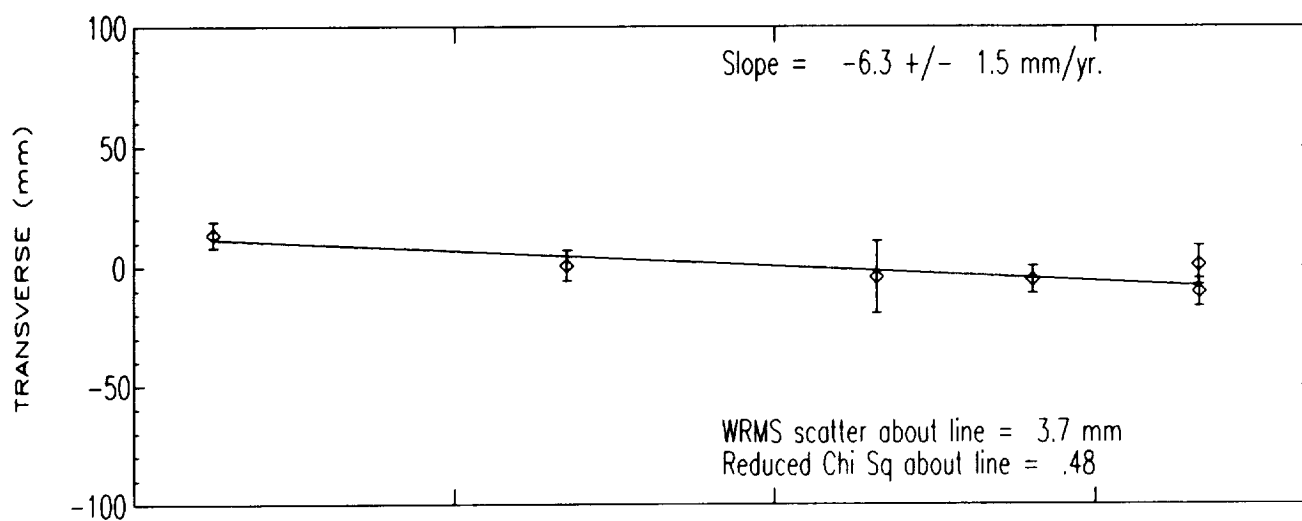
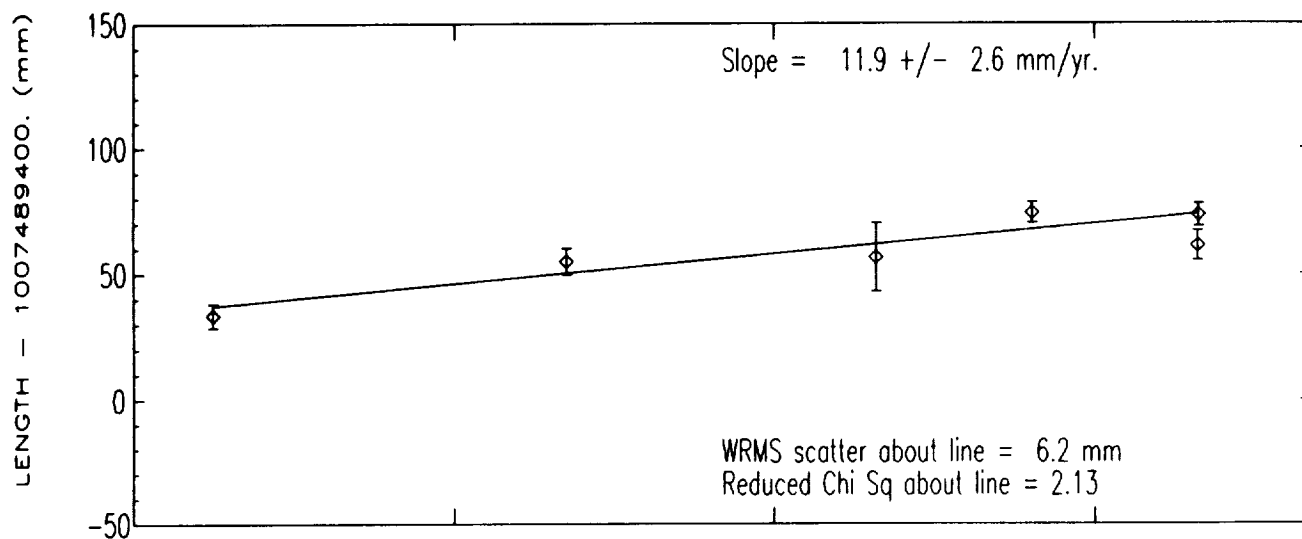
12 Observations



HATCREEK TO VERNAL

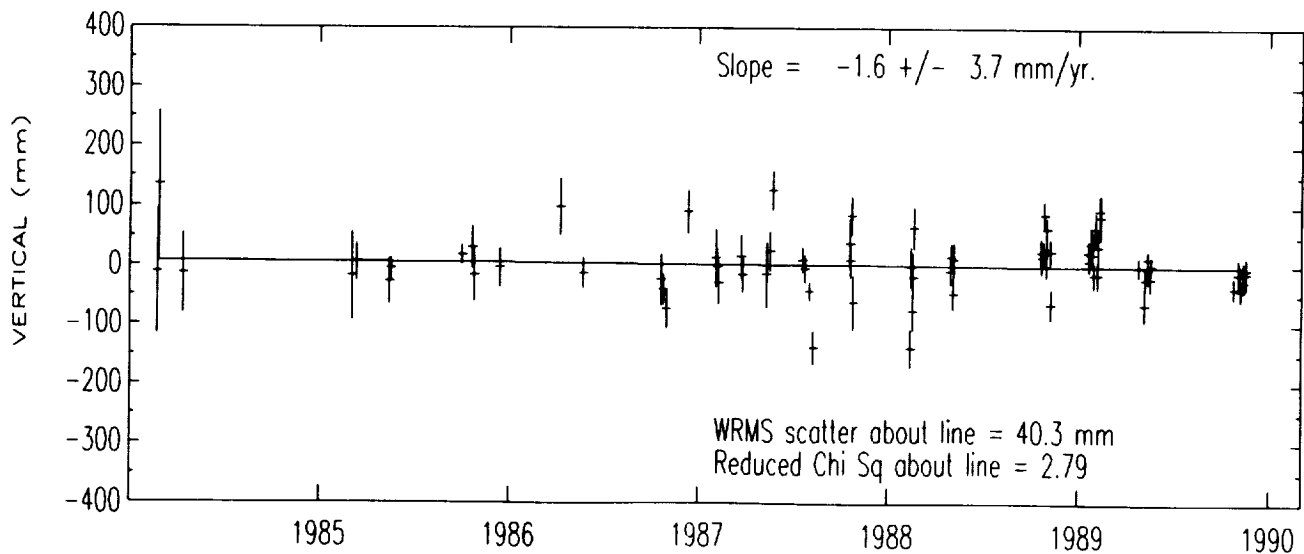
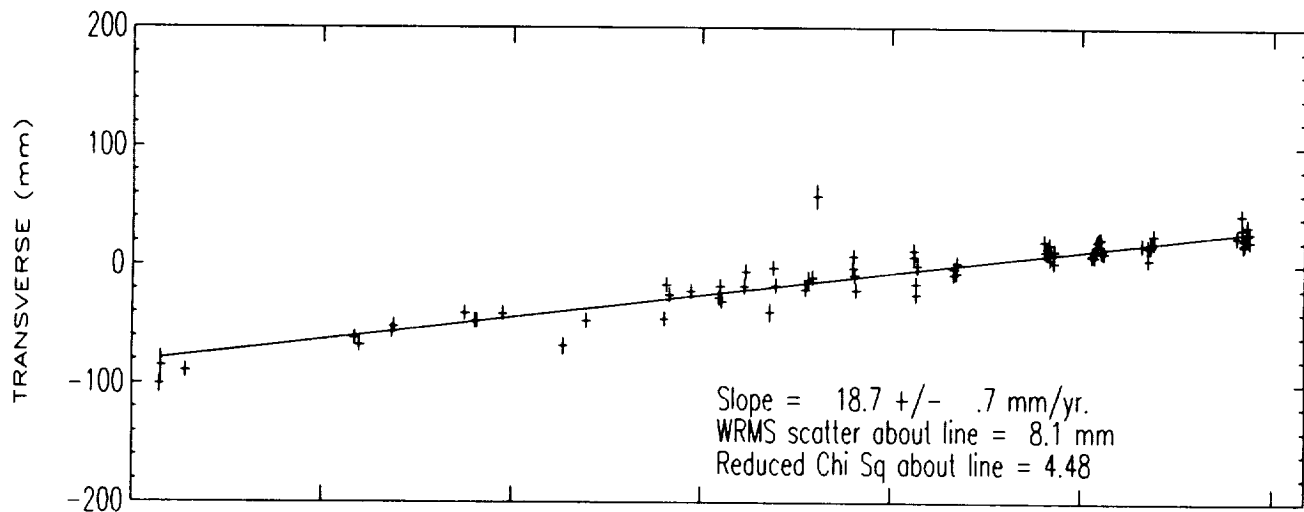
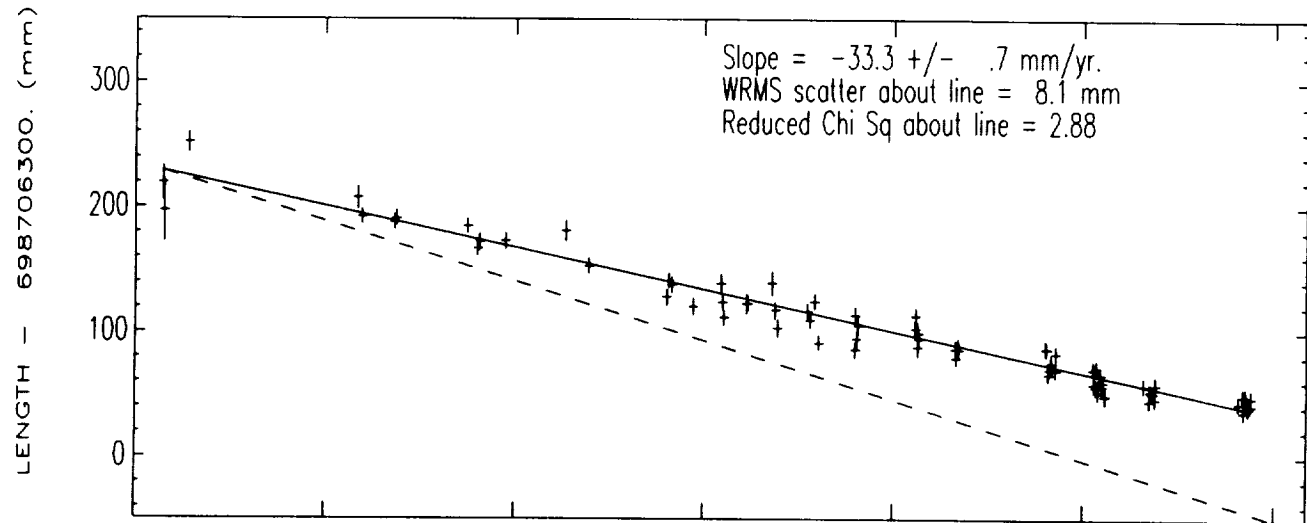
(Length = 1007 km)

6 Observations



HATCREEK TO VNDNBERG (Length = 698 km)

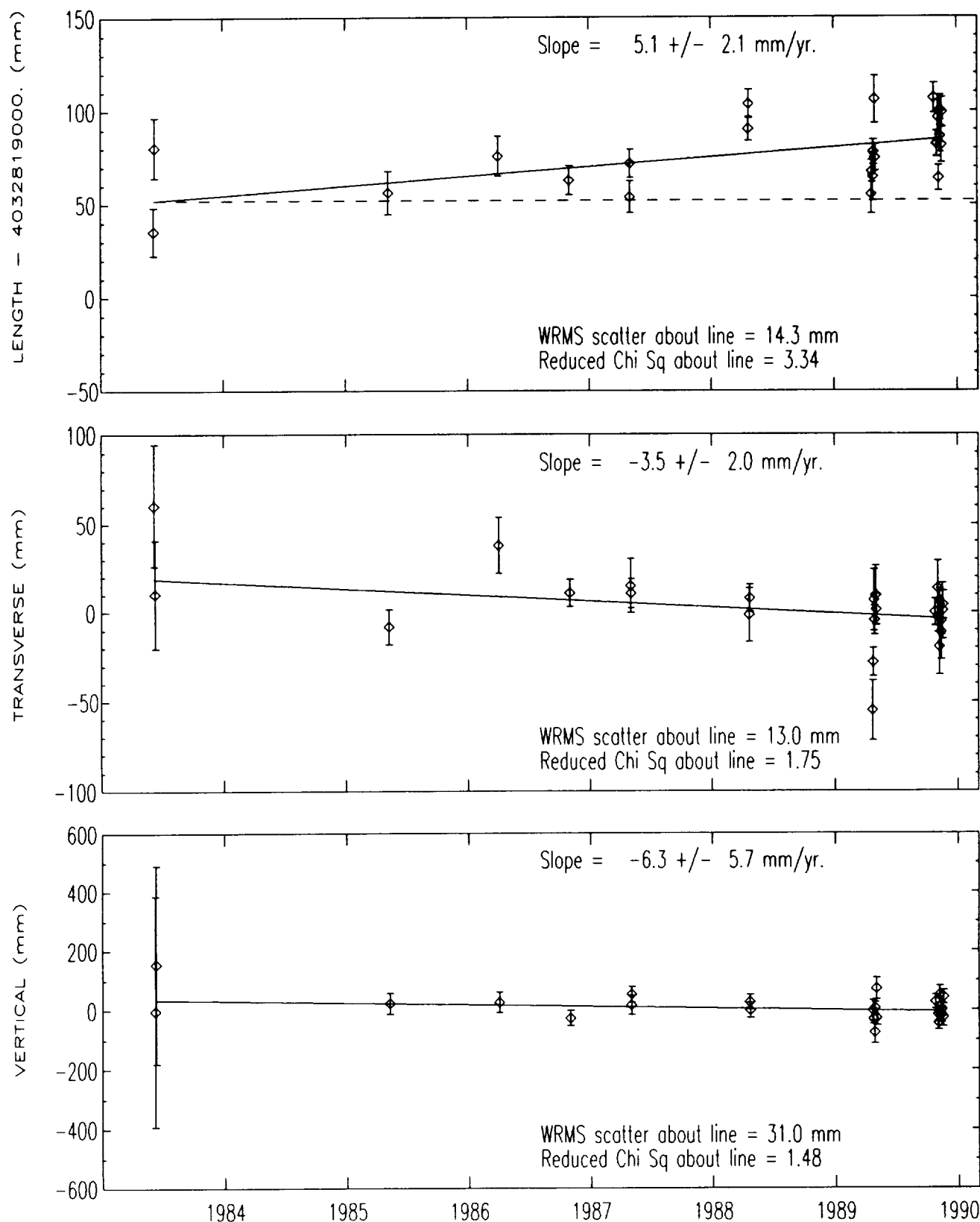
79 Observations



HATCREEK TO WESTFORD

(Length = 4032 km)

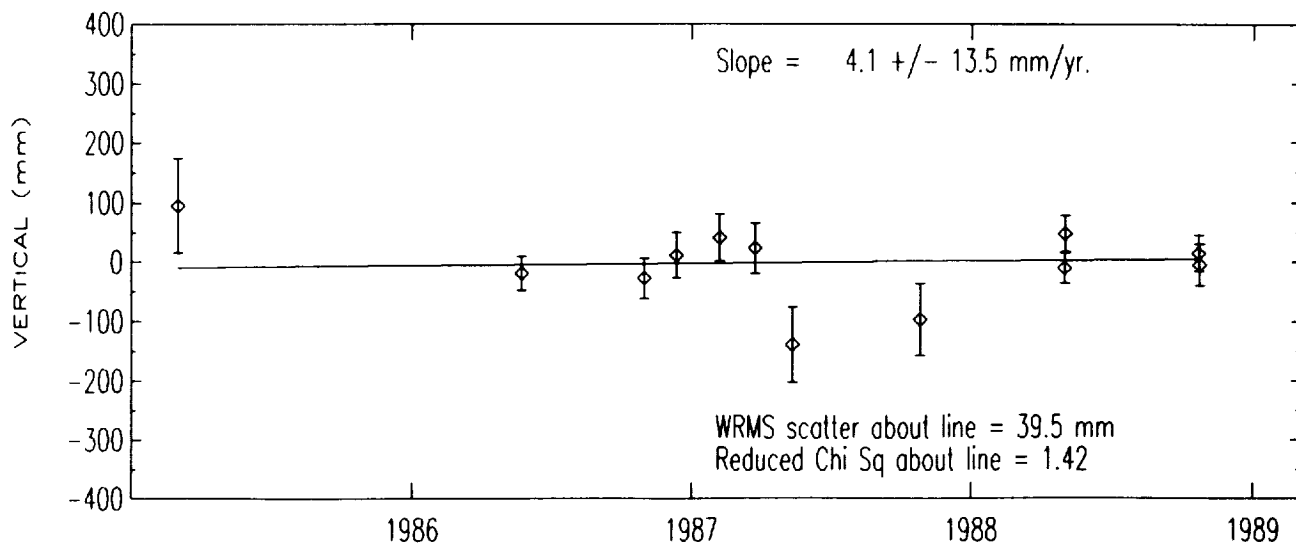
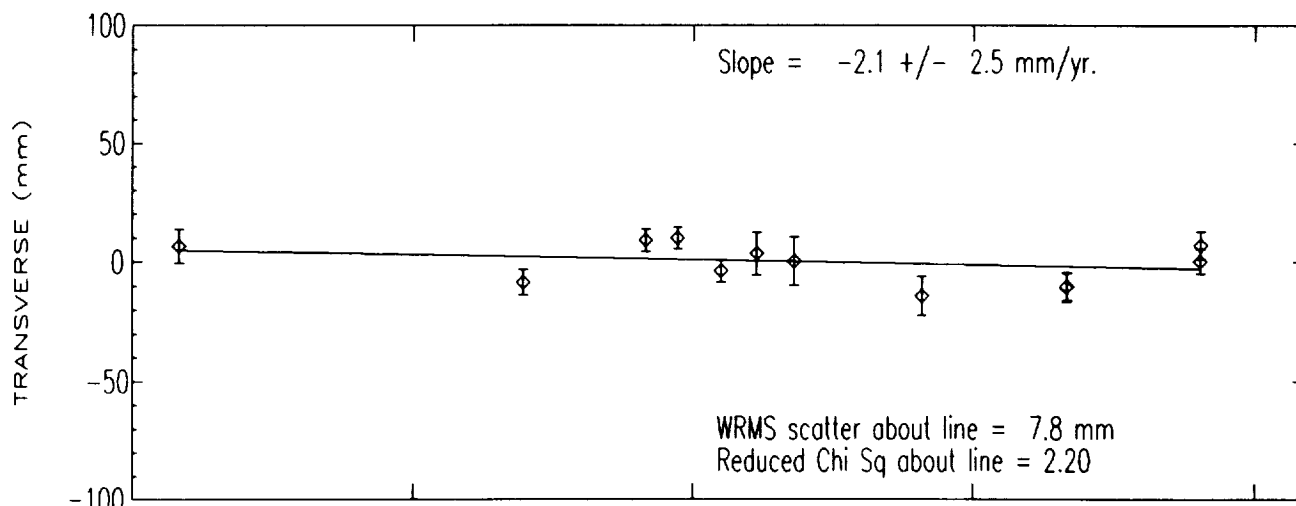
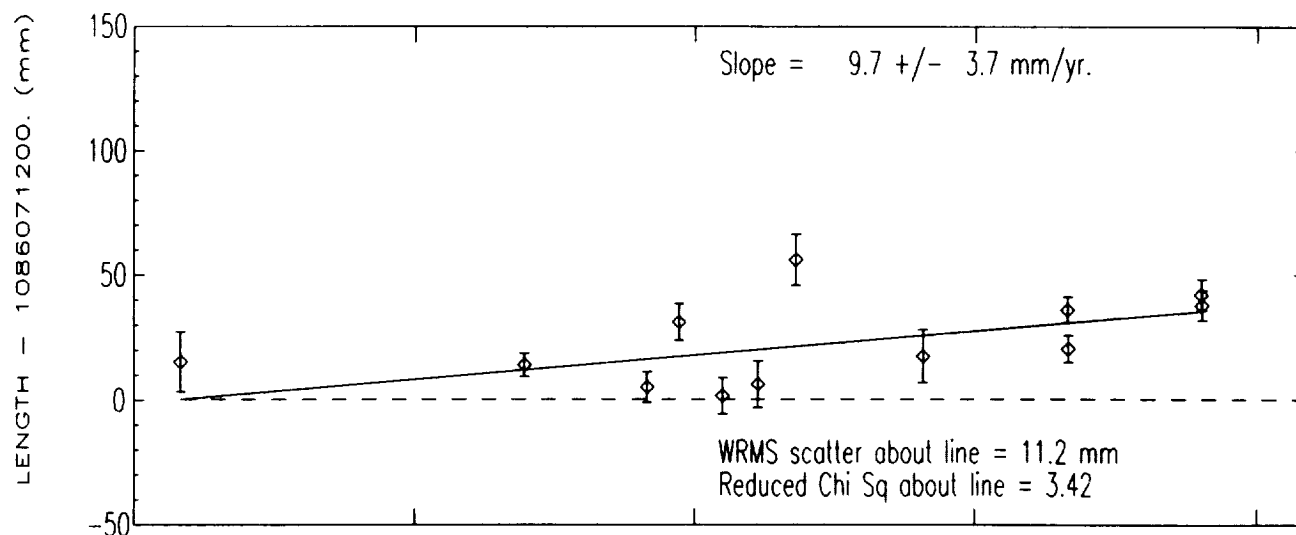
24 Observations



HATCREEK TO YUMA

(Length = 1086 km)

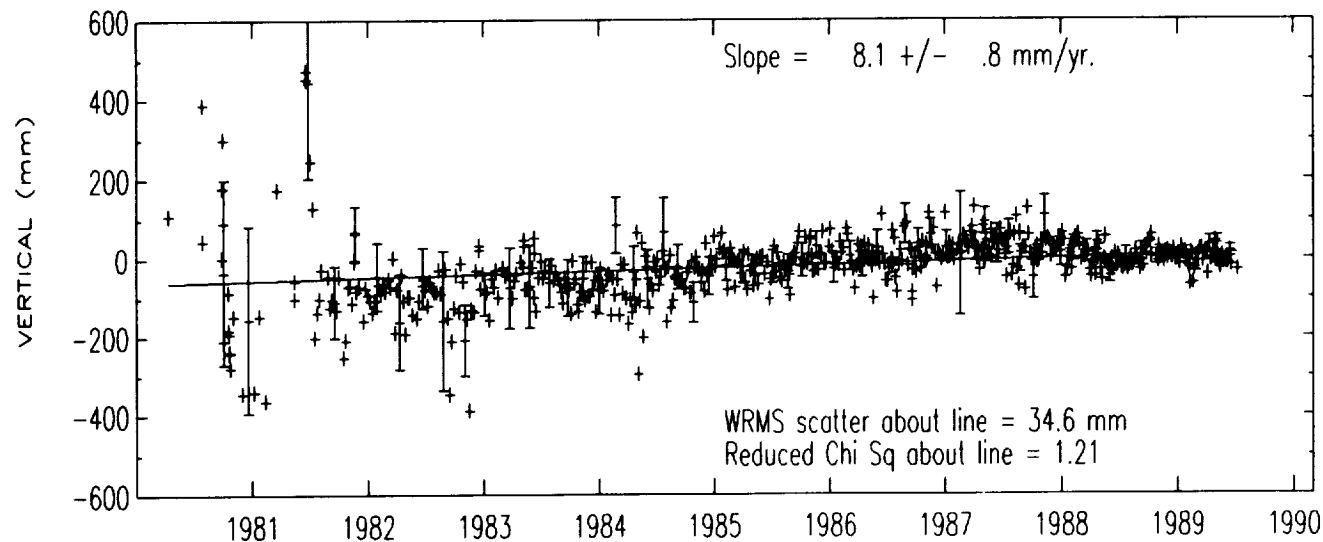
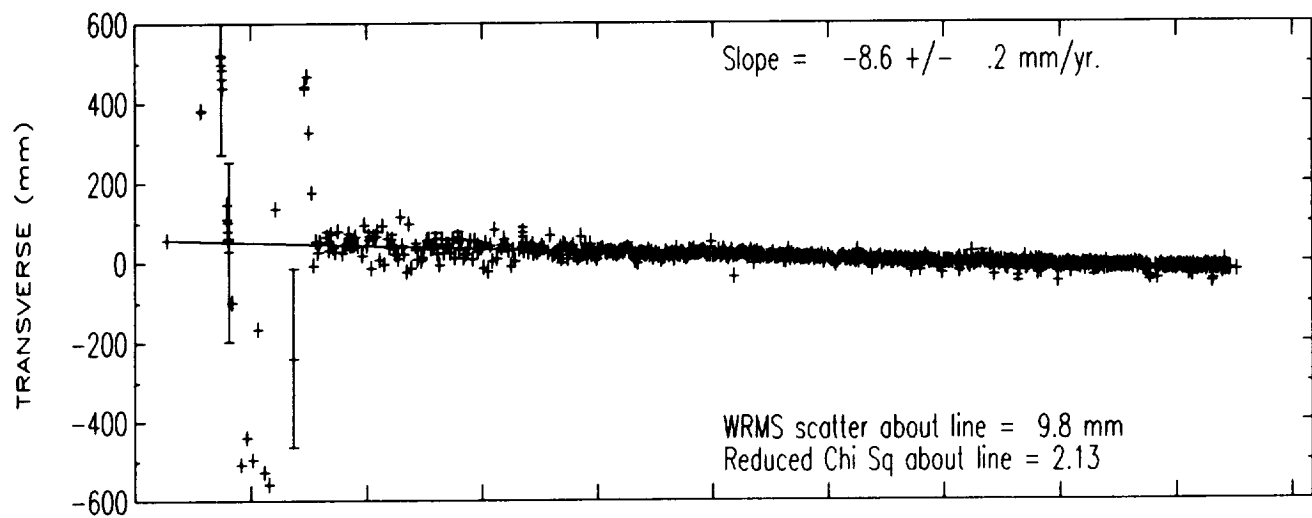
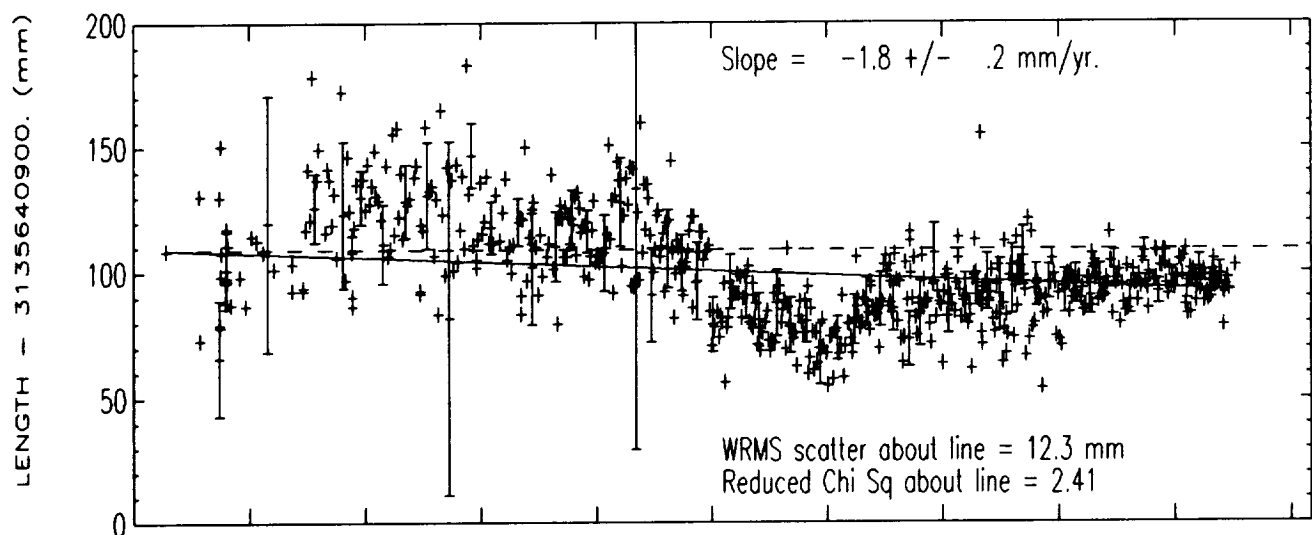
12 Observations



HAYSTACK TO HRAS 085

(Length = 3135 km)

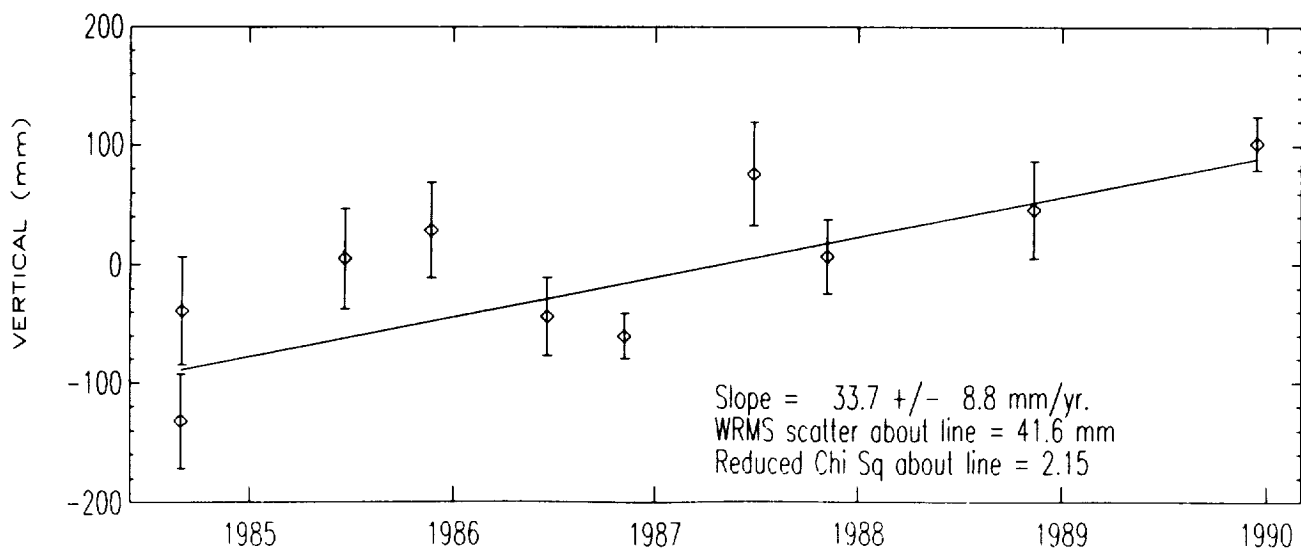
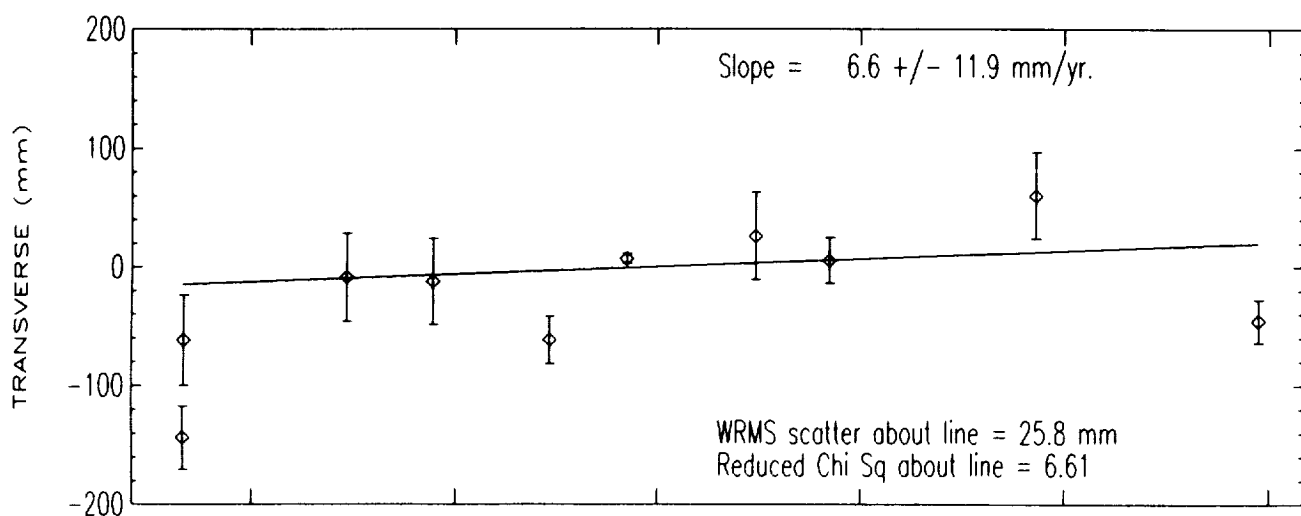
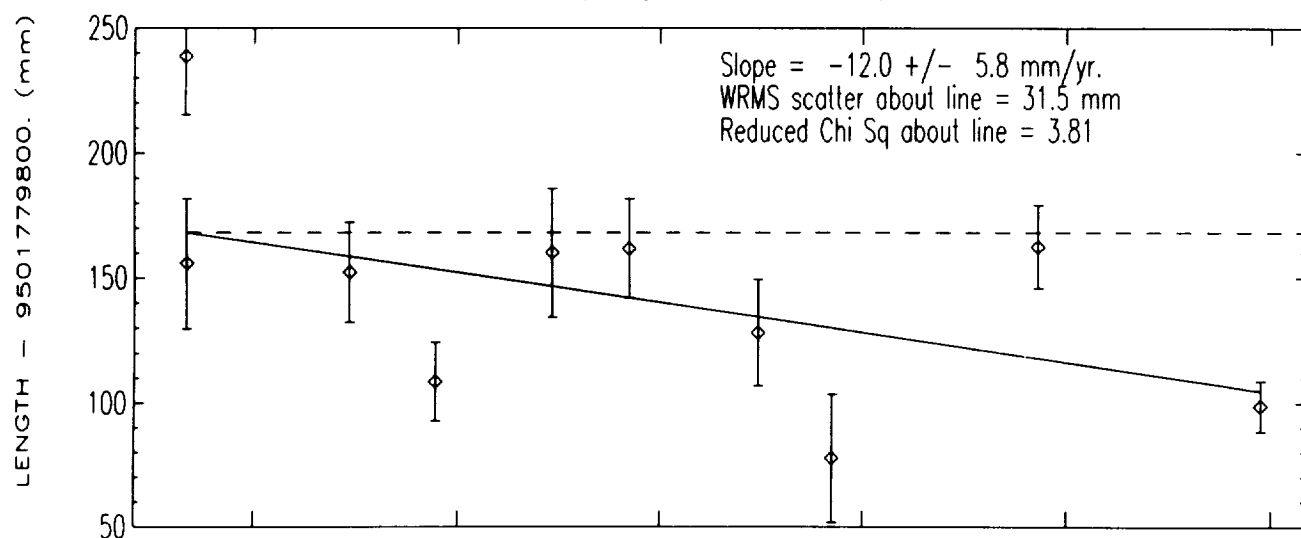
622 Observations



HAYSTACK TO KASHIMA

(Length = 9501 km)

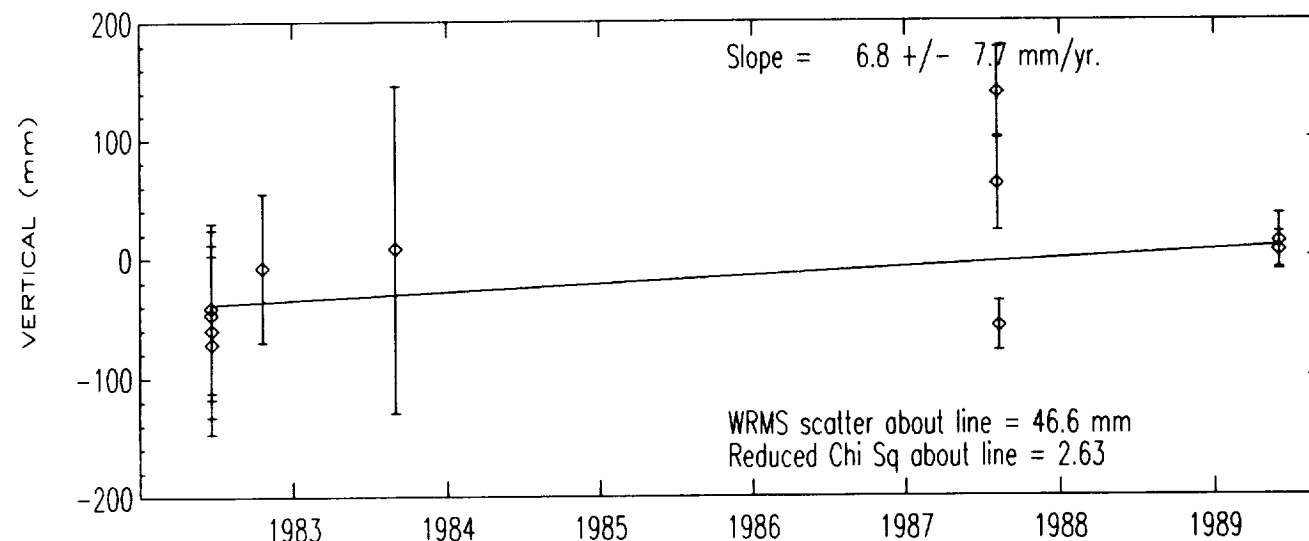
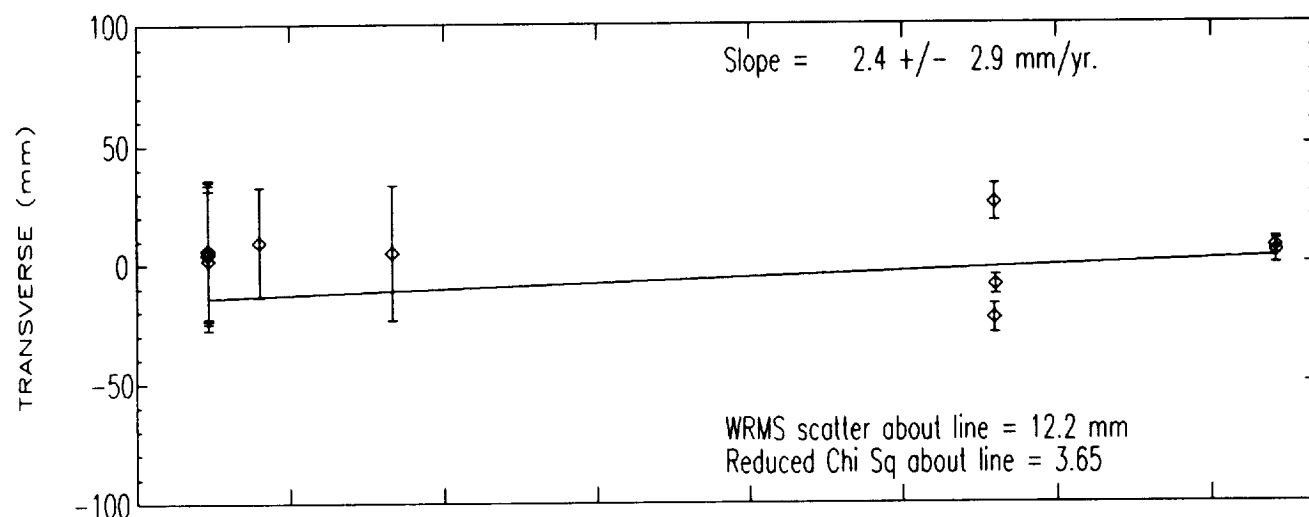
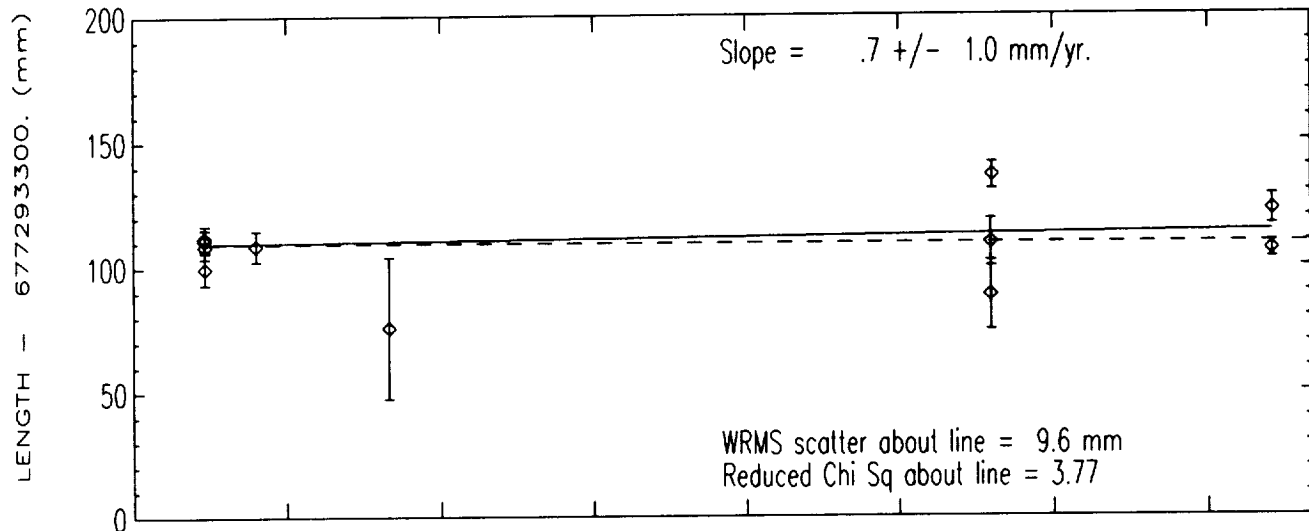
10 Observations



HAYSTACK TO MARPOINT

(Length = 677 km)

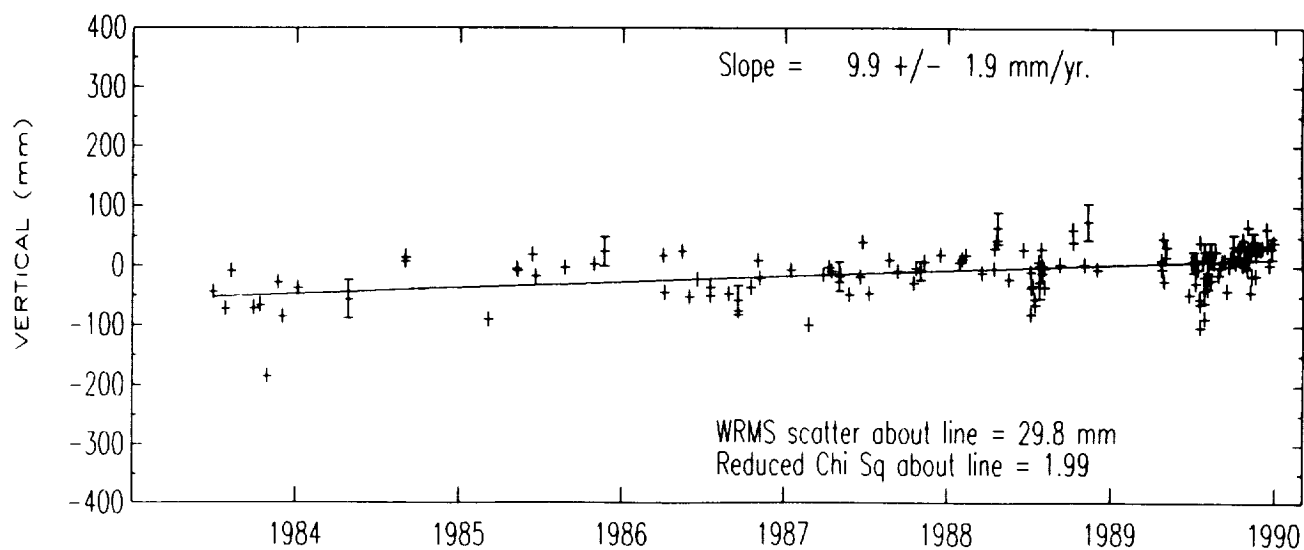
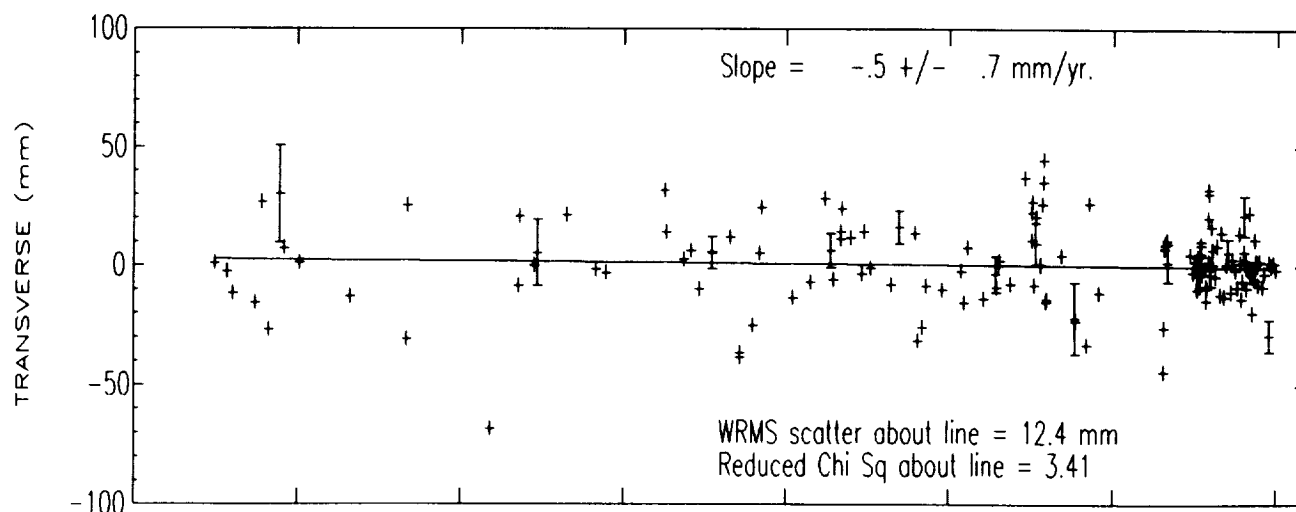
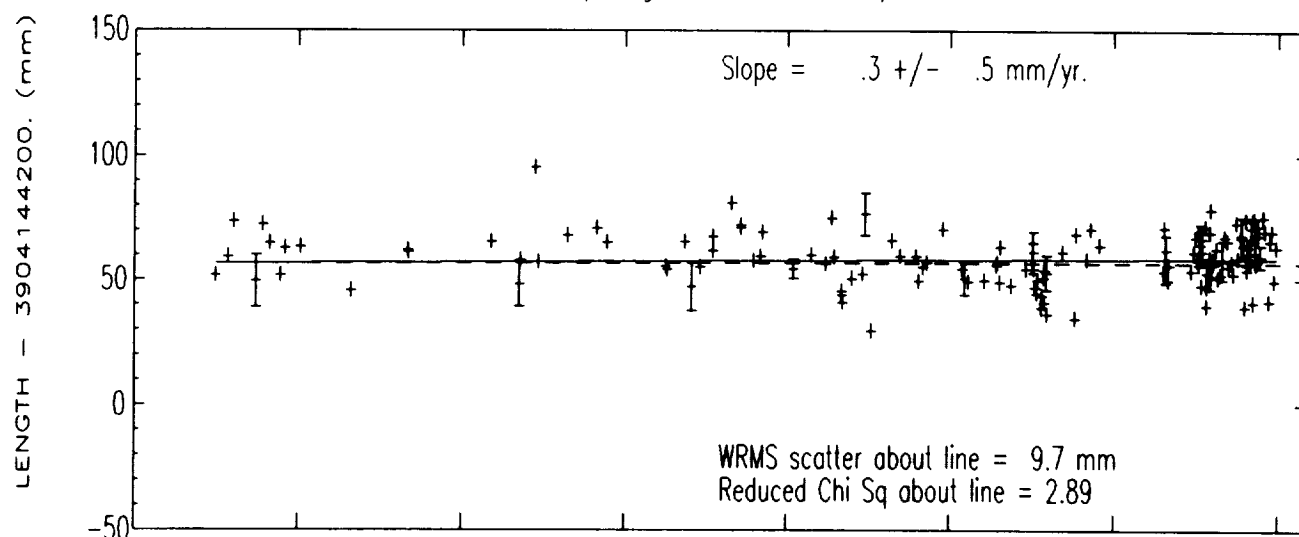
11 Observations



HAYSTACK TO MOJAVE12

(Length = 3904 km)

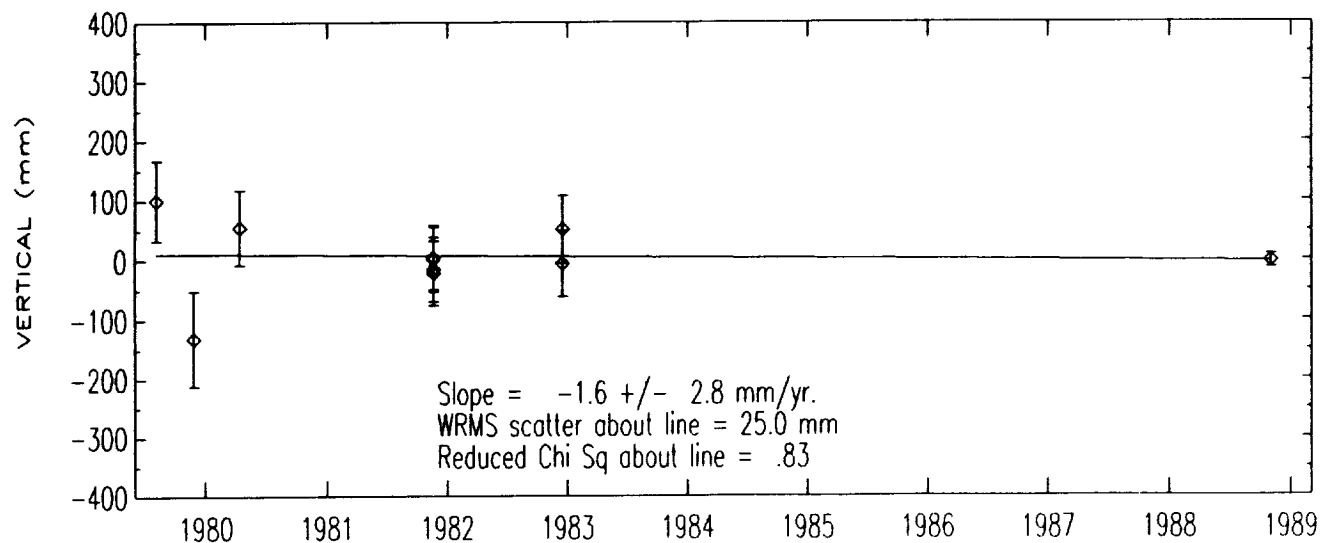
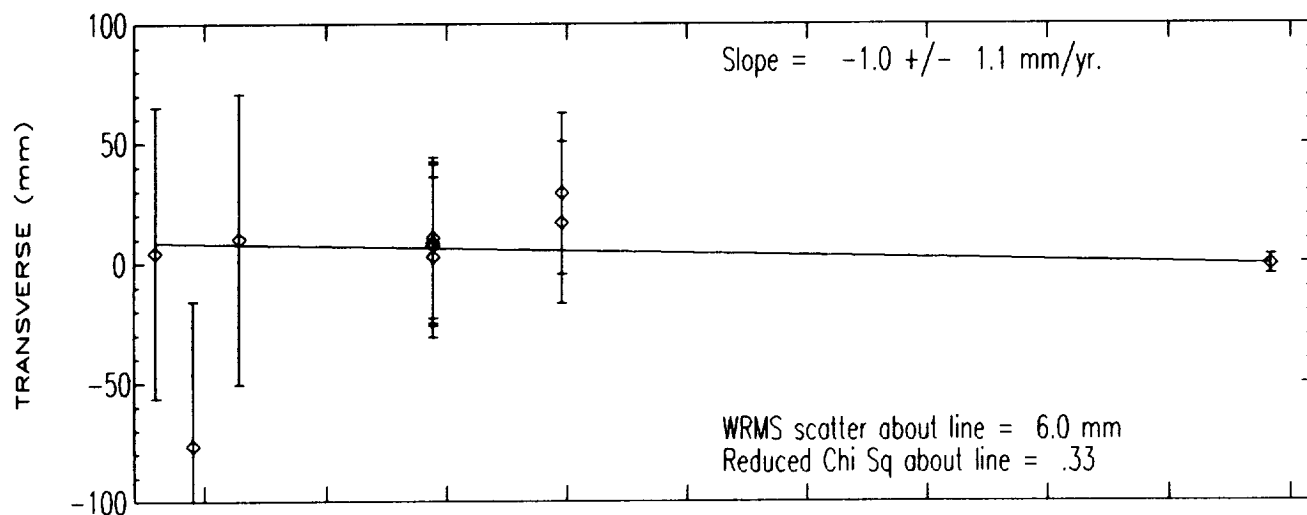
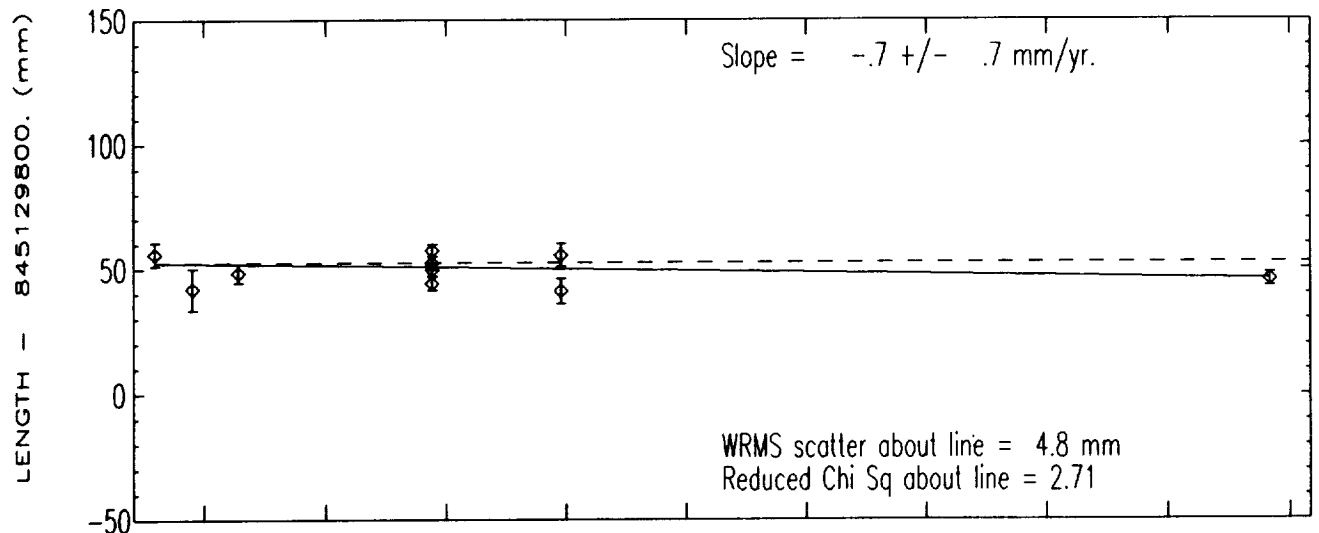
151 Observations



HAYSTACK TO NRAO 140

(Length = 845 km)

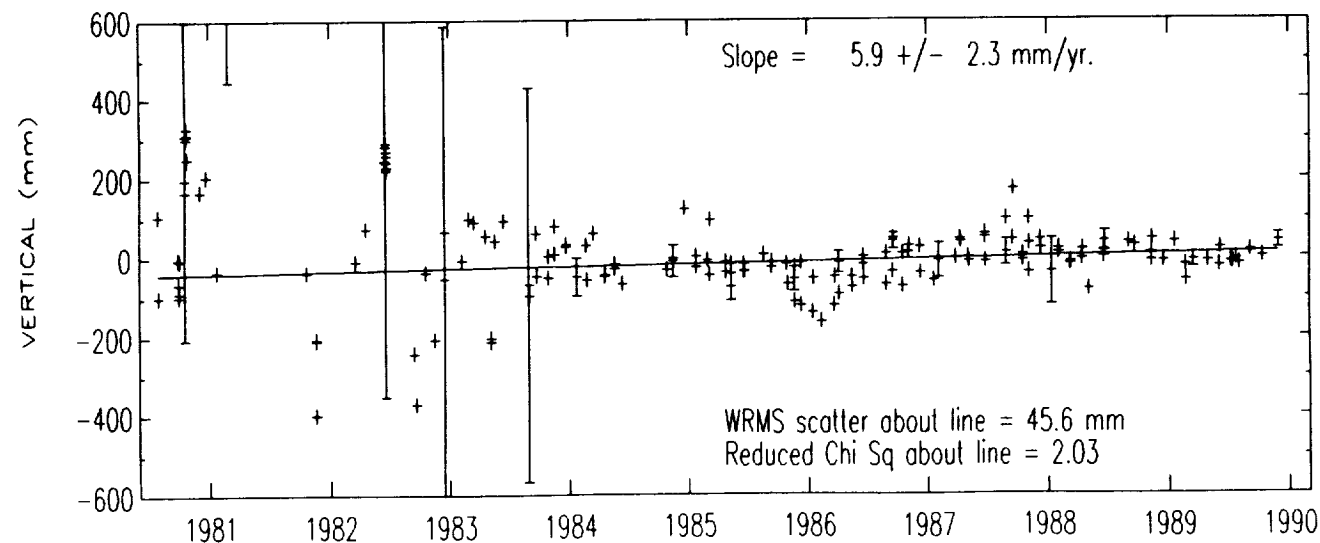
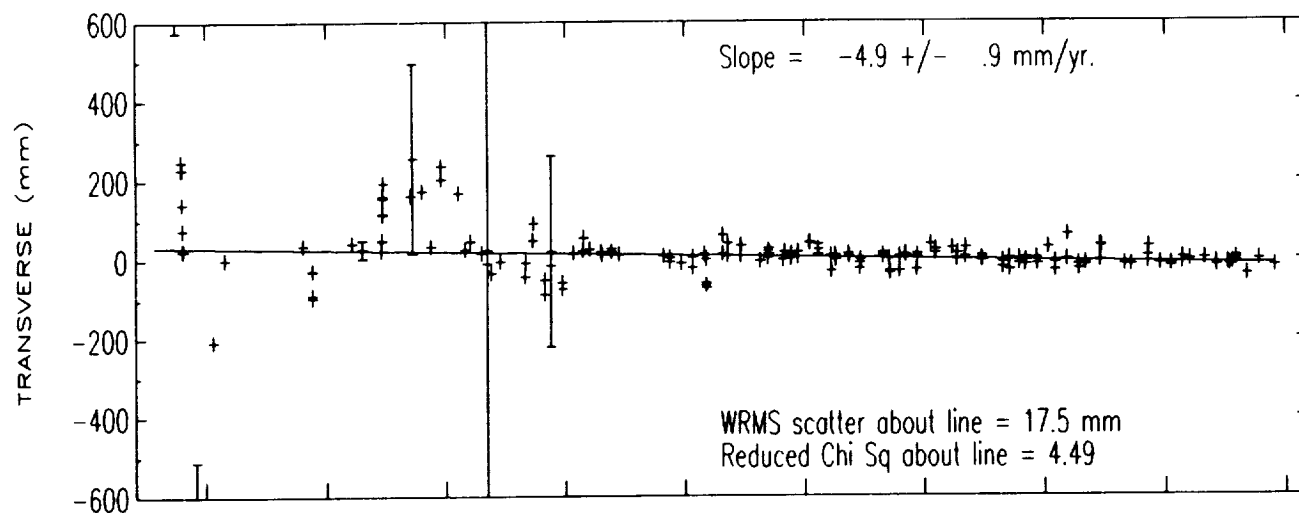
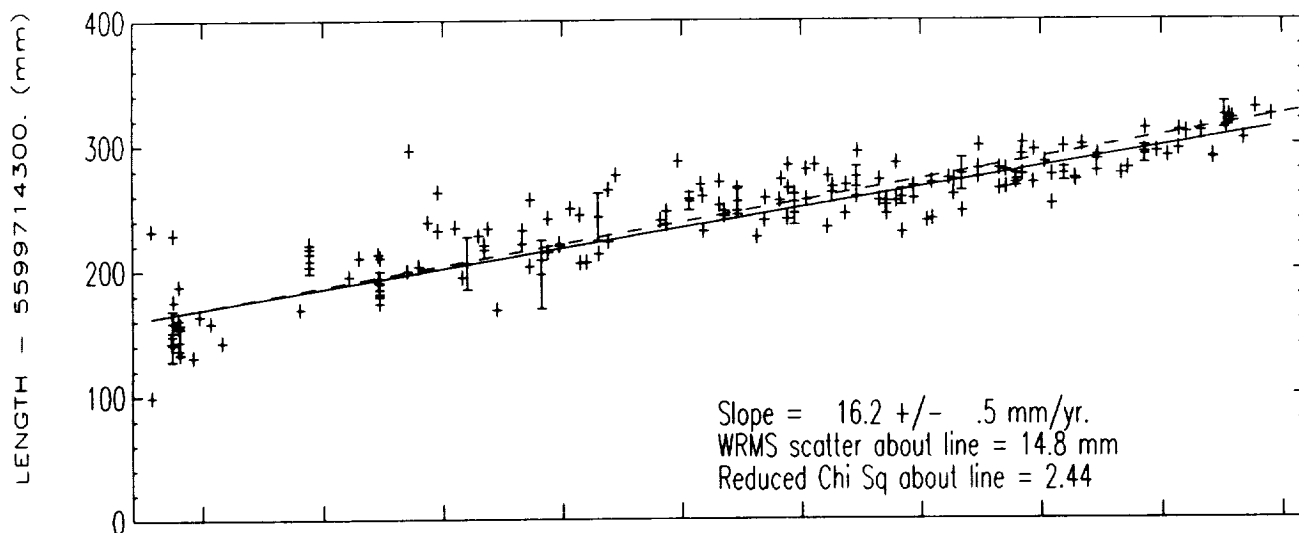
10 Observations



HAYSTACK TO ONSALA60

(Length = 5599 km)

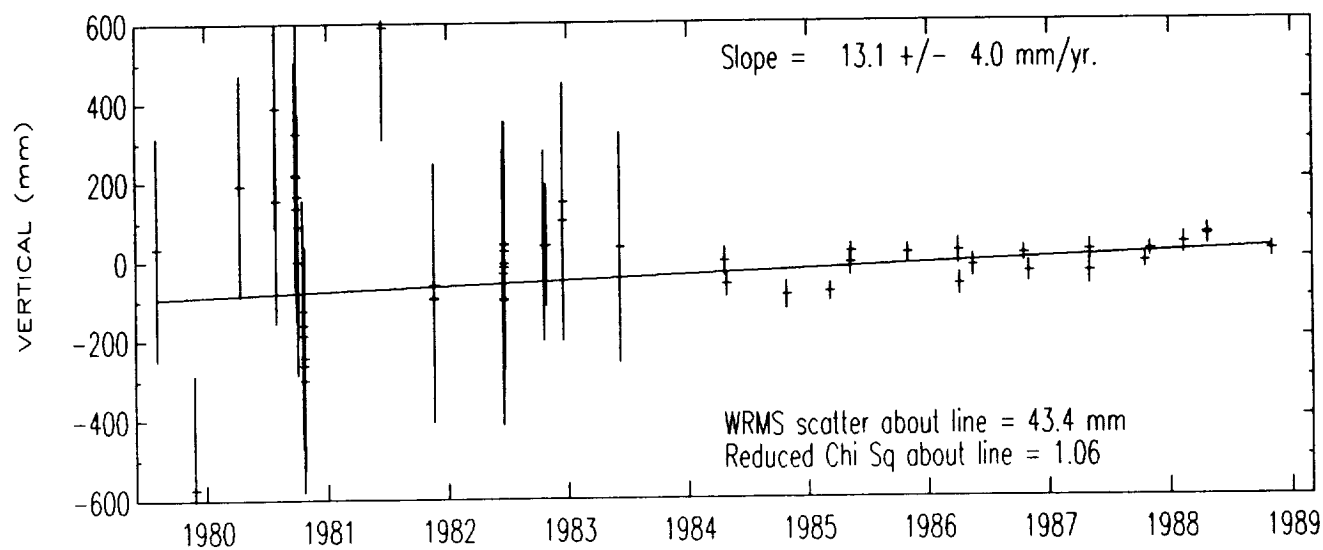
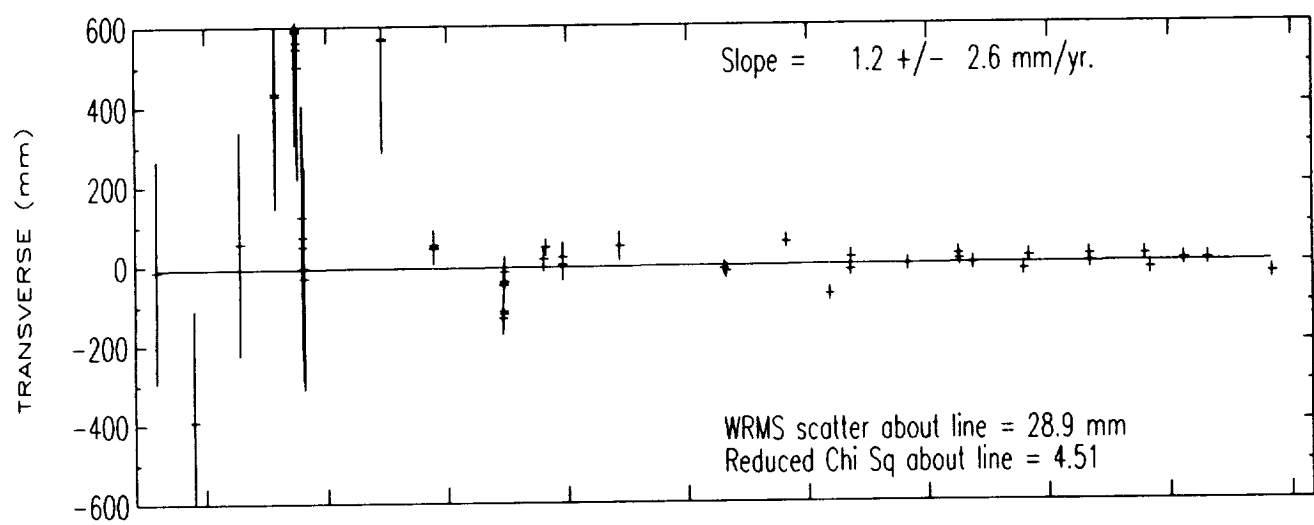
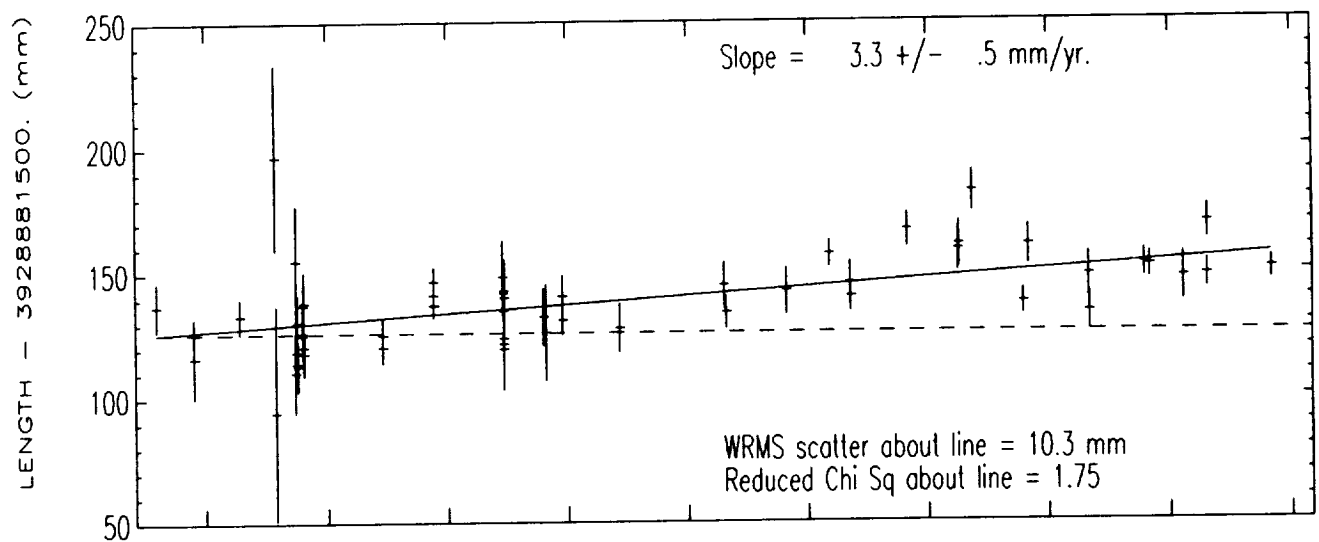
170 Observations



HAYSTACK TO OVRO 130

(Length = 3928 km)

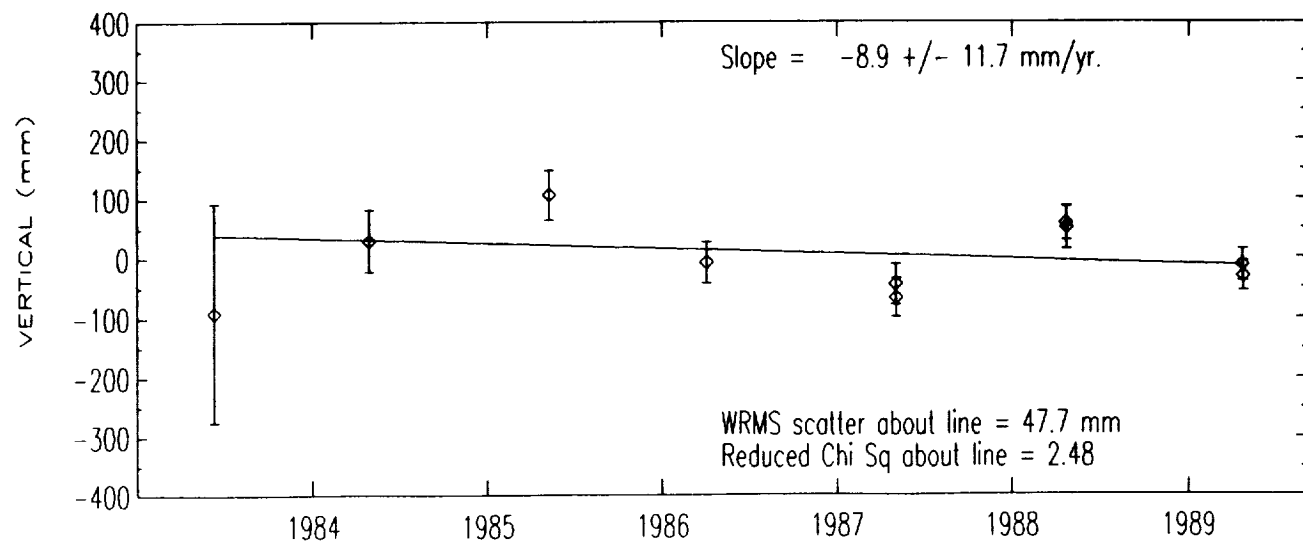
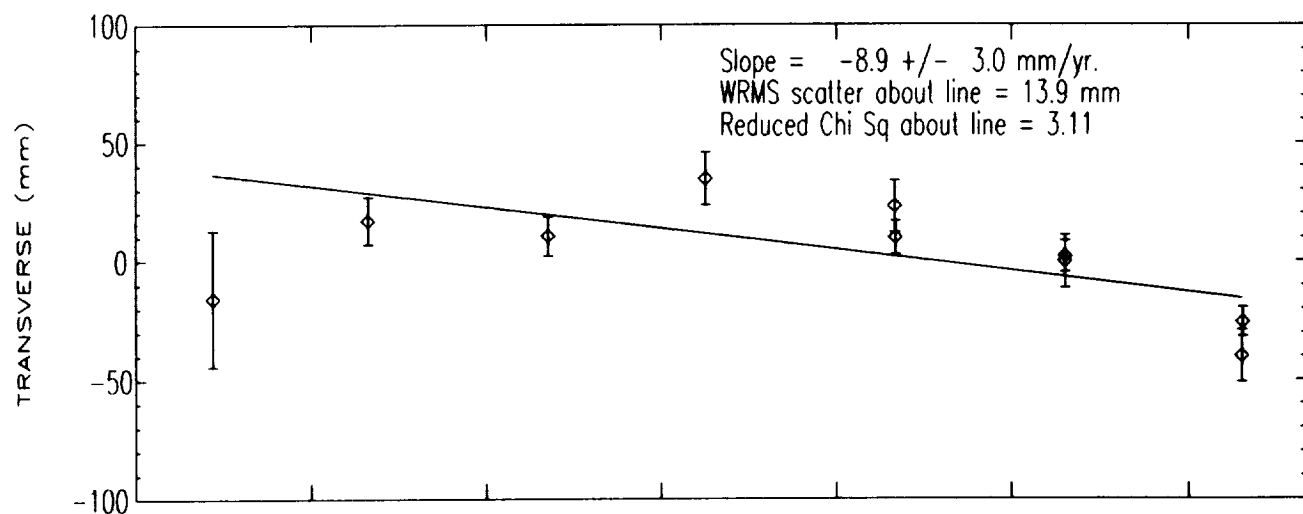
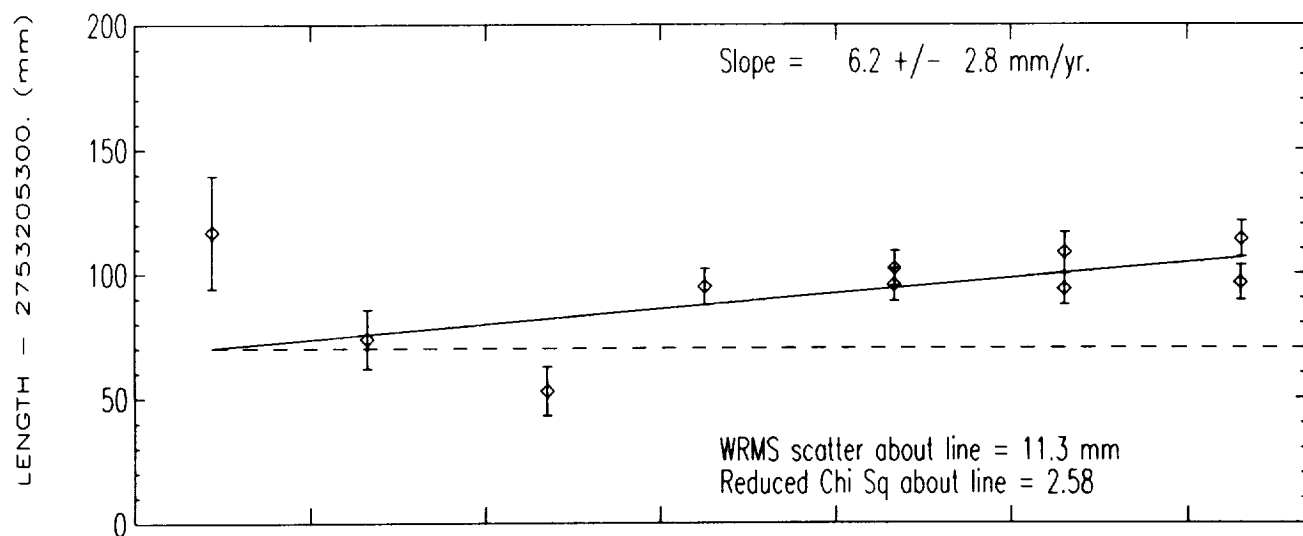
57 Observations



HAYSTACK TO PLATTVIL

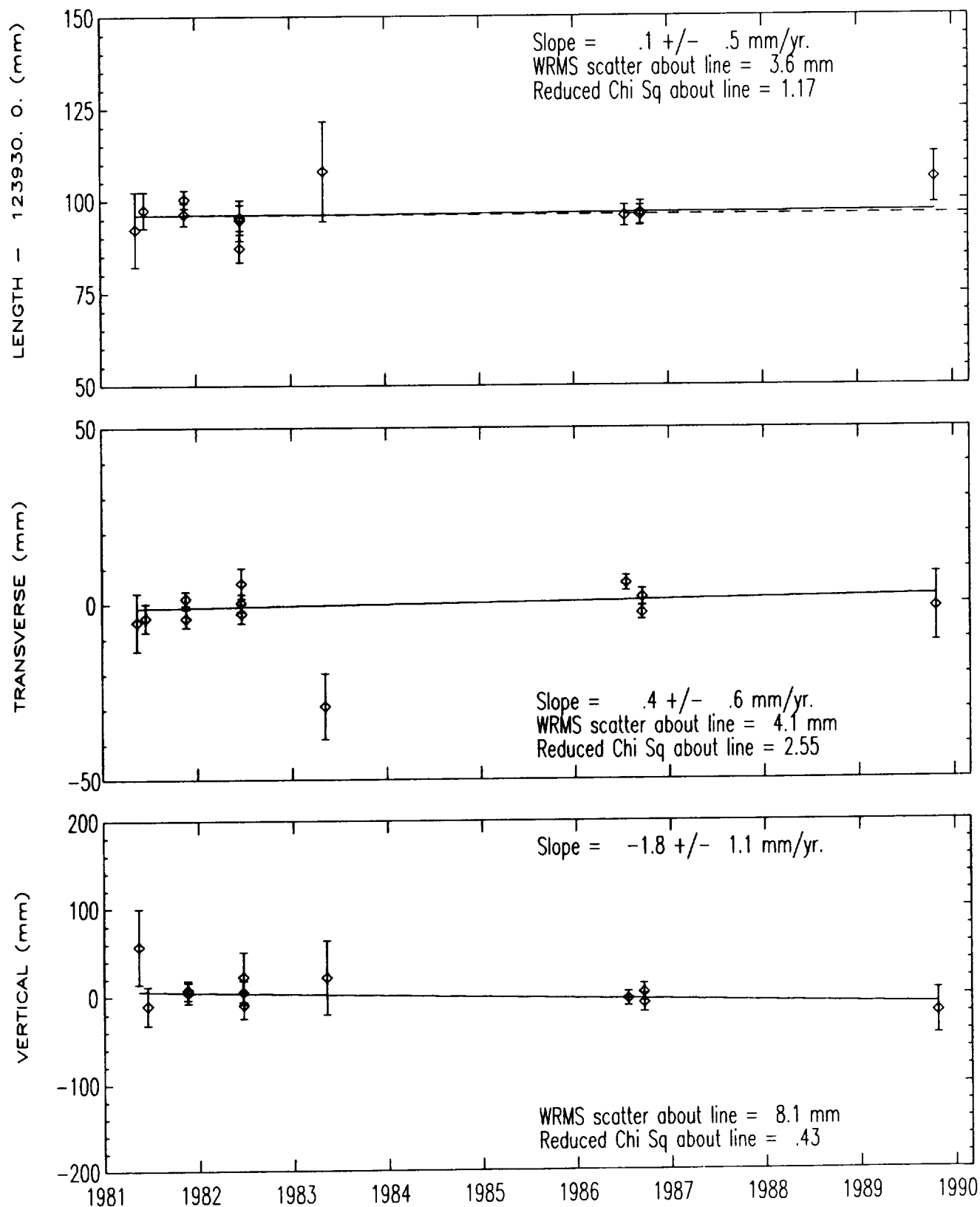
(Length = 2753 km)

10 Observations



HAYSTACK TO WESTFORD (Length = 1 km)

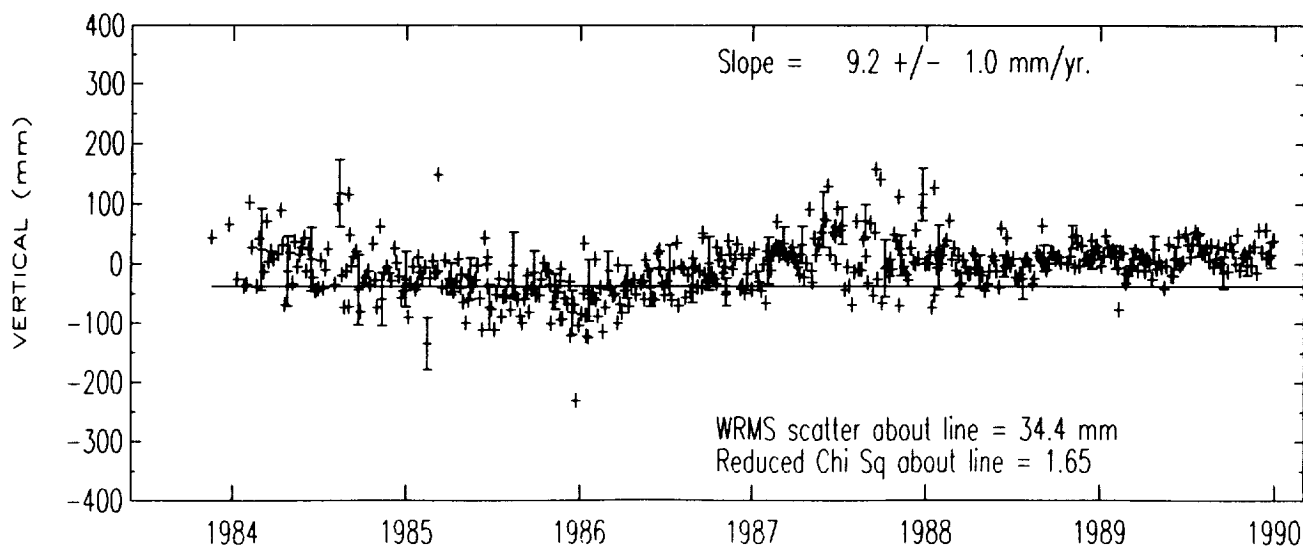
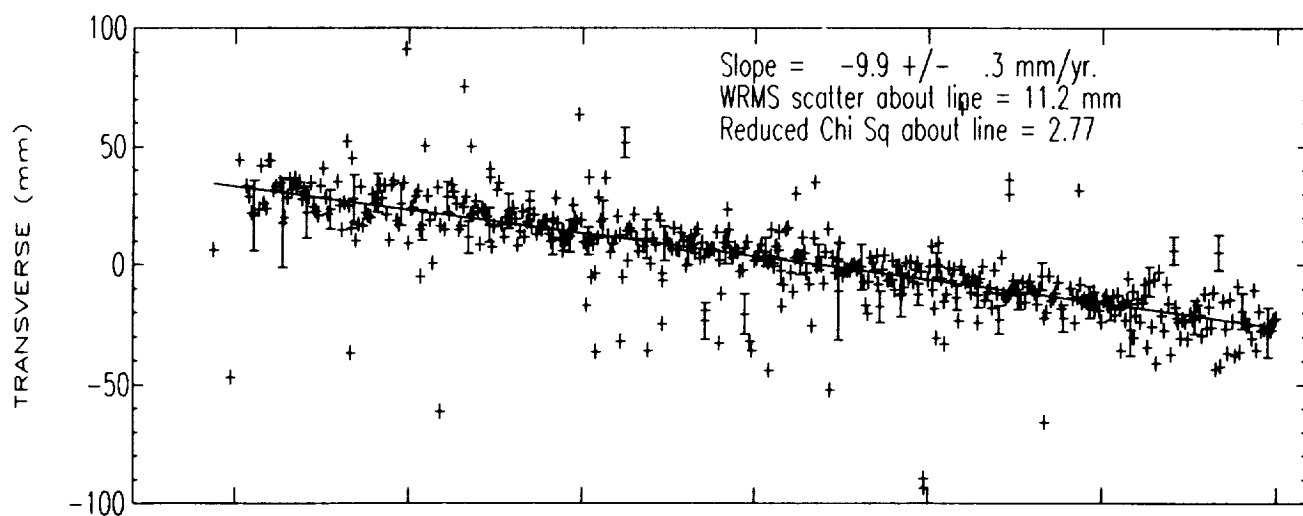
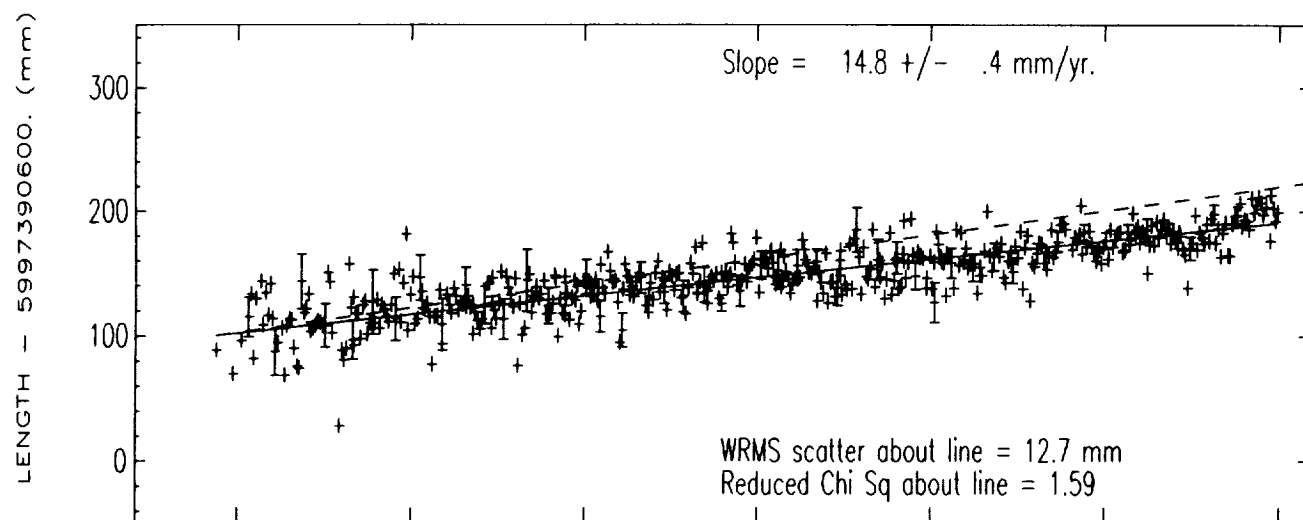
12 Observations



HAYSTACK TO WETZELL

(Length = 5997 km)

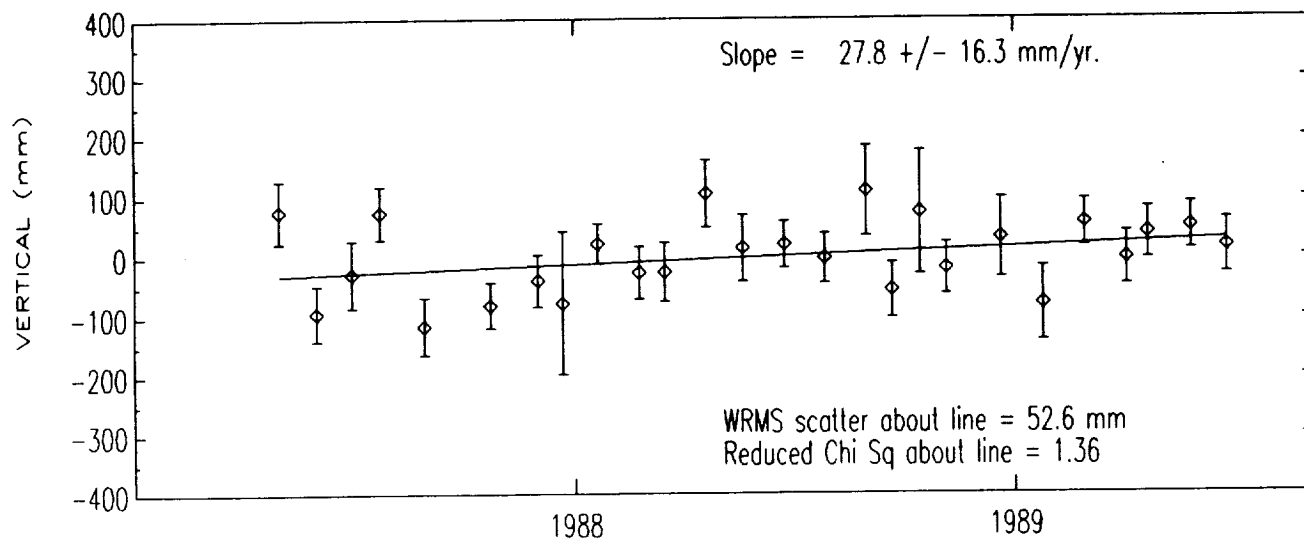
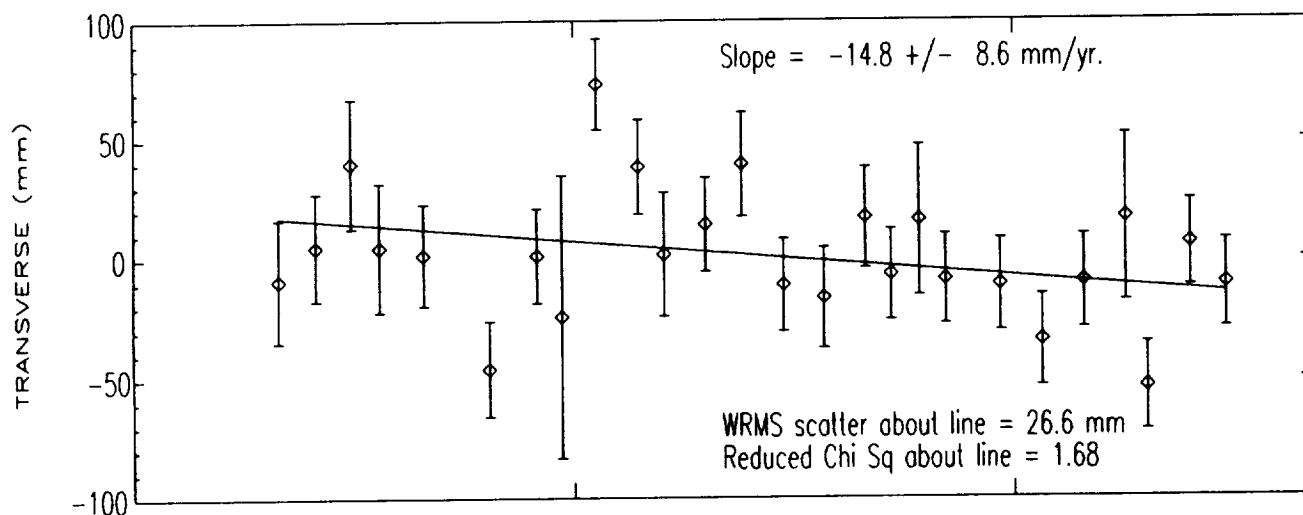
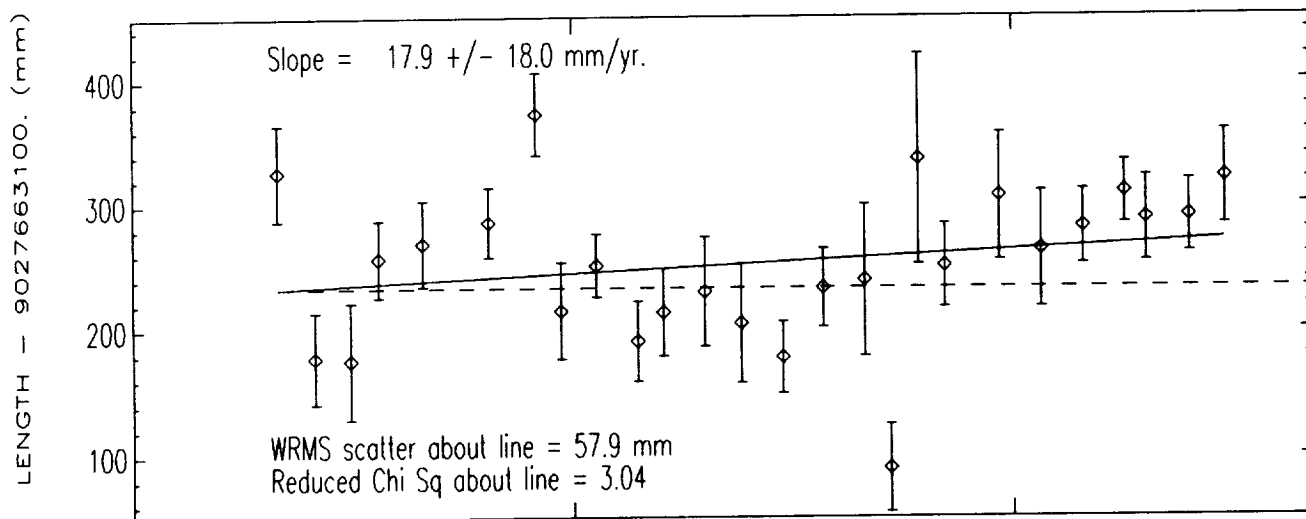
491 Observations



HRAS 085 TO KASHIMA

(Length = 9027 km)

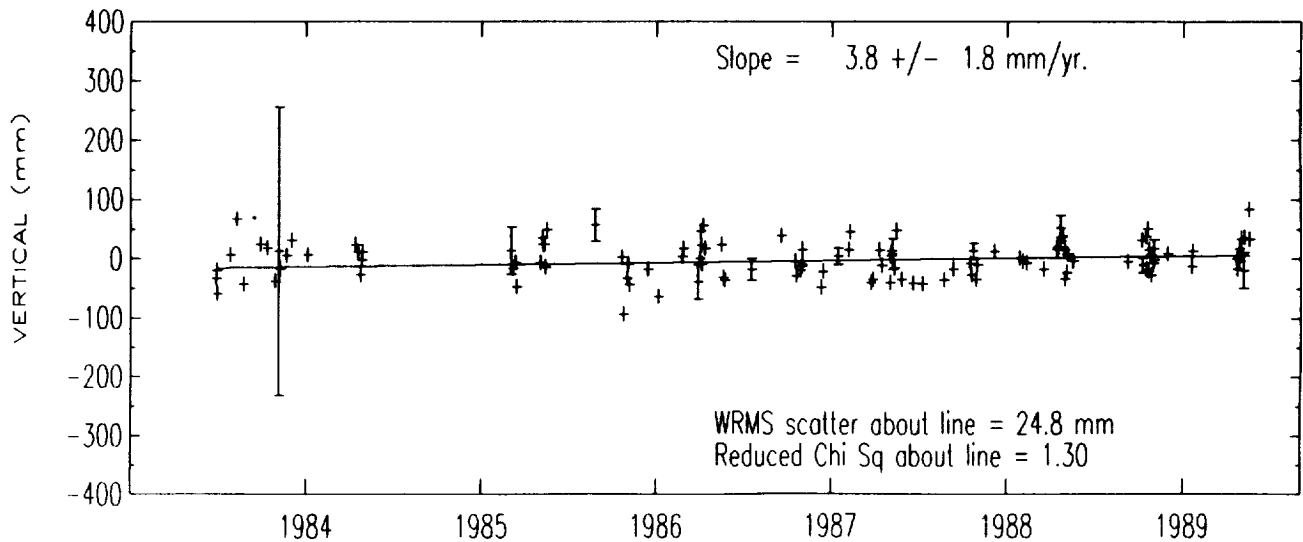
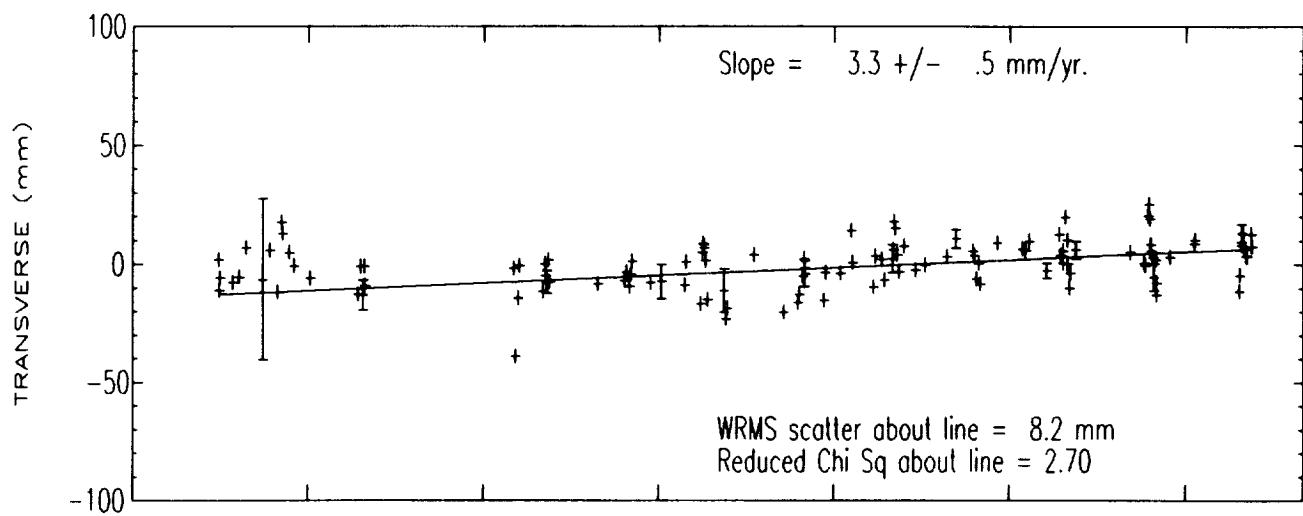
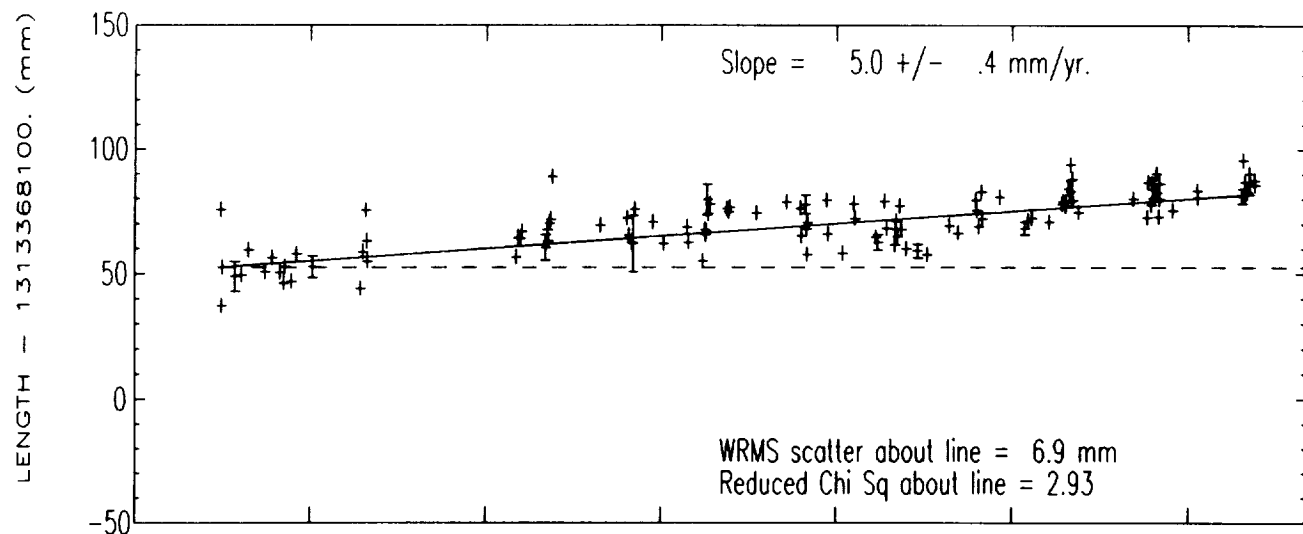
26 Observations



HRAS 085 TO MOJAVE12

(Length = 1313 km)

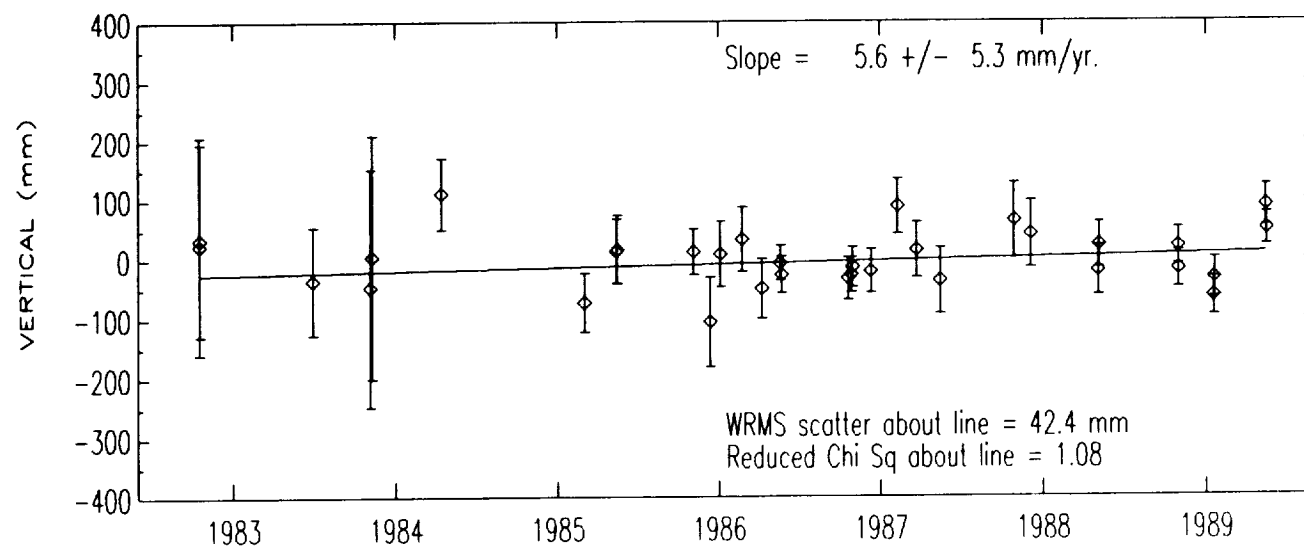
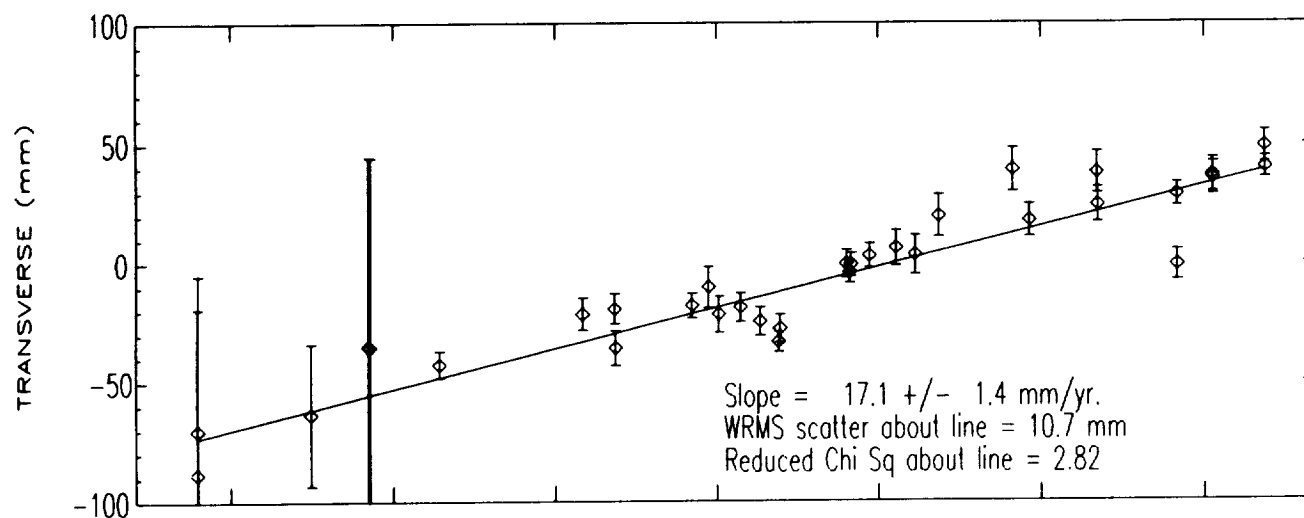
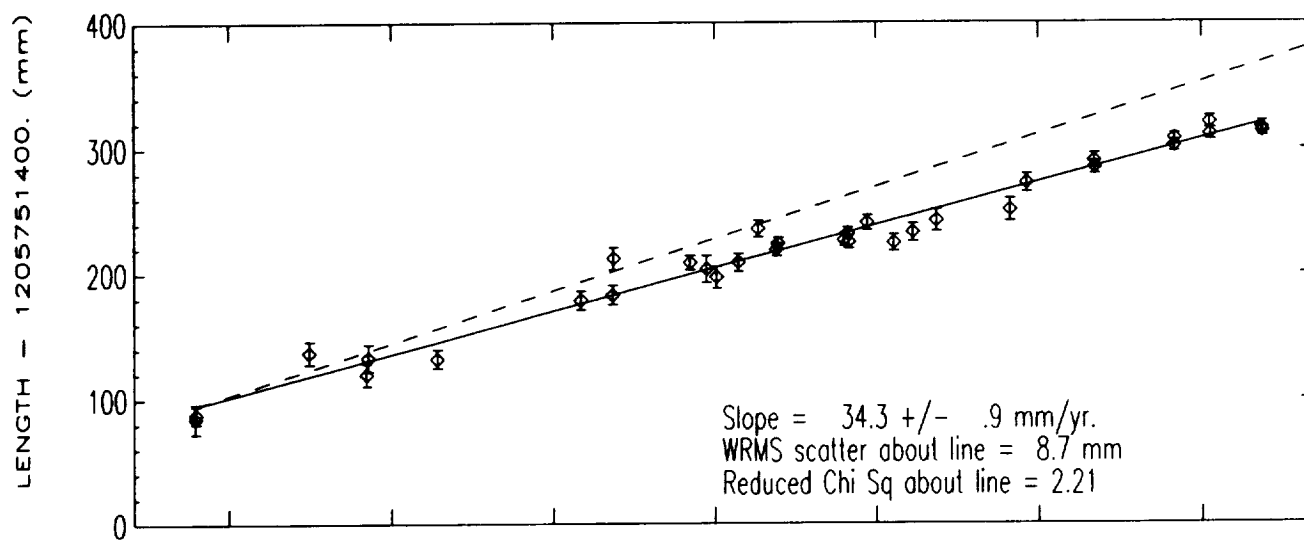
123 Observations



HRAS 085 TO MON PEAK

(Length = 1205 km)

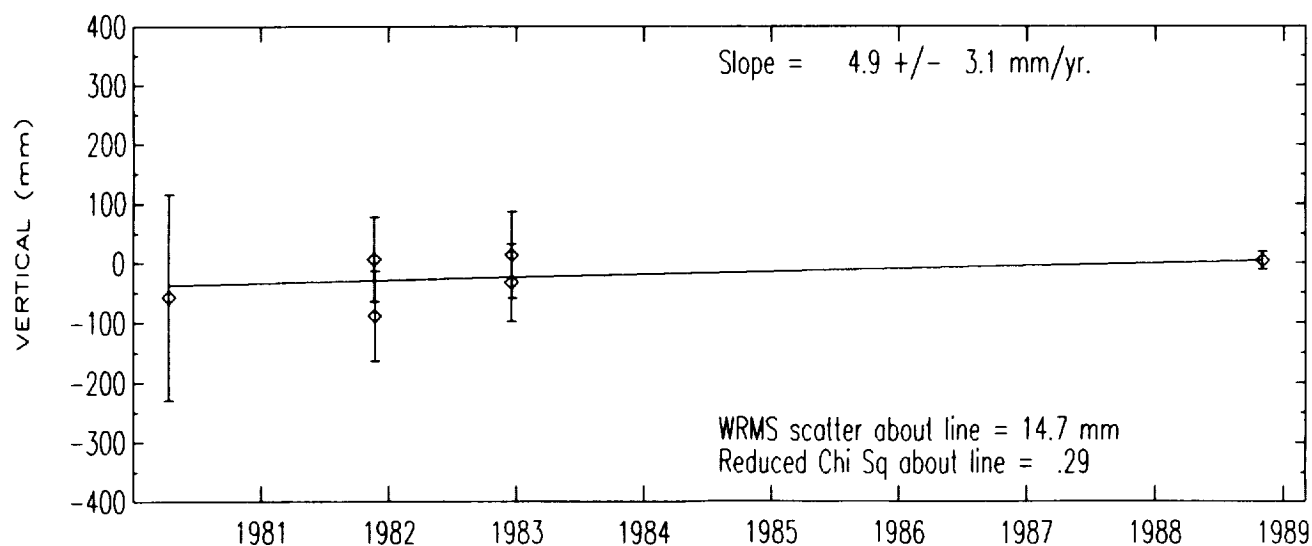
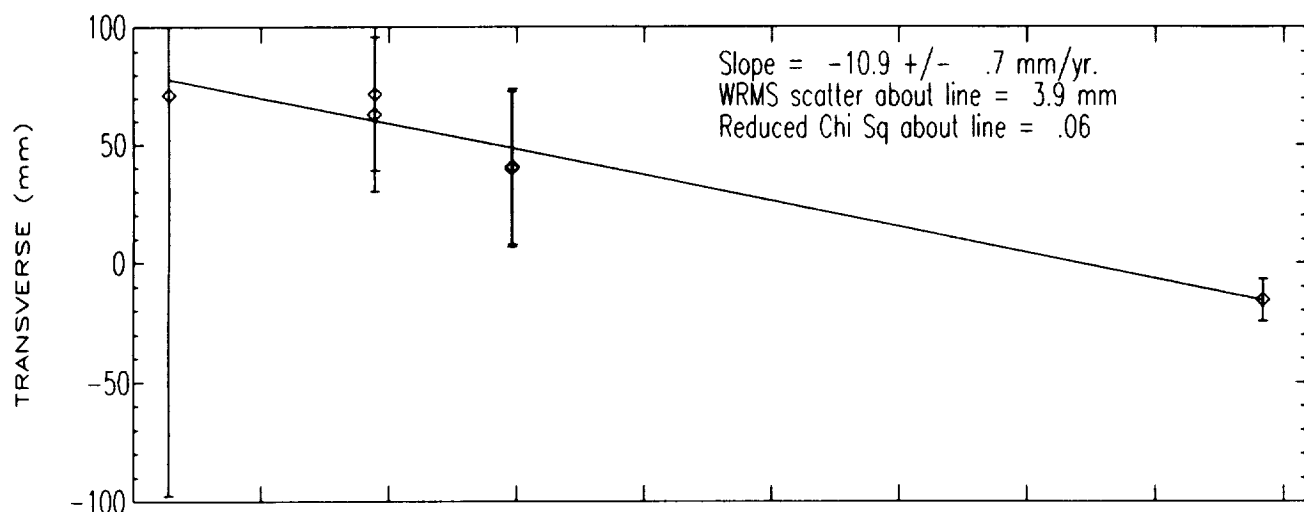
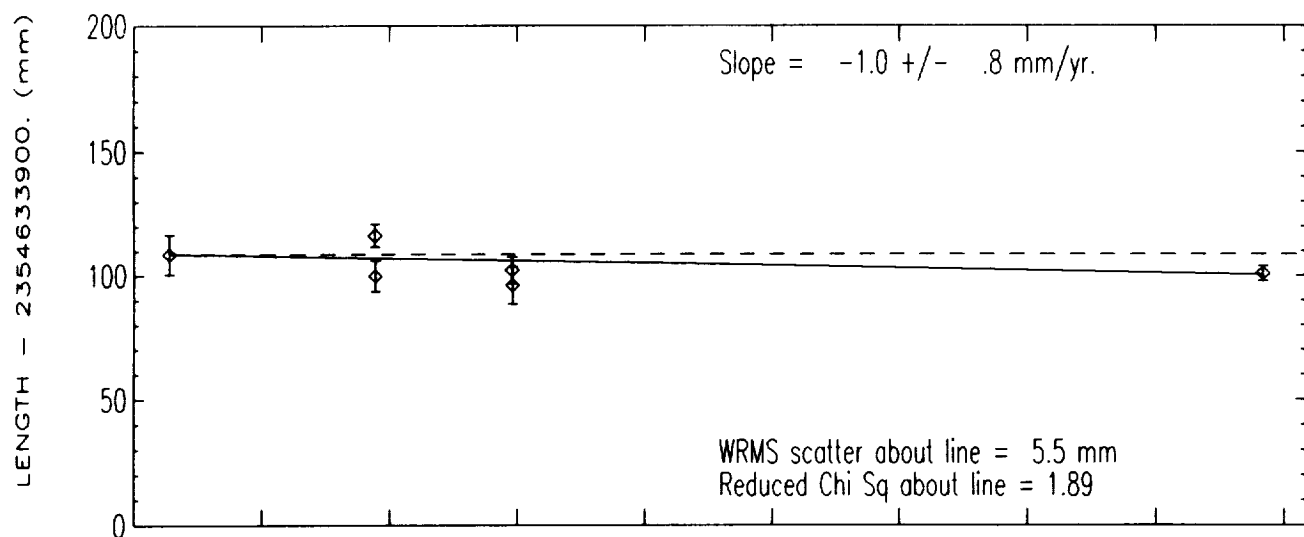
33 Observations



HRAS 085 TO NRAO 140

(Length = 2354 km)

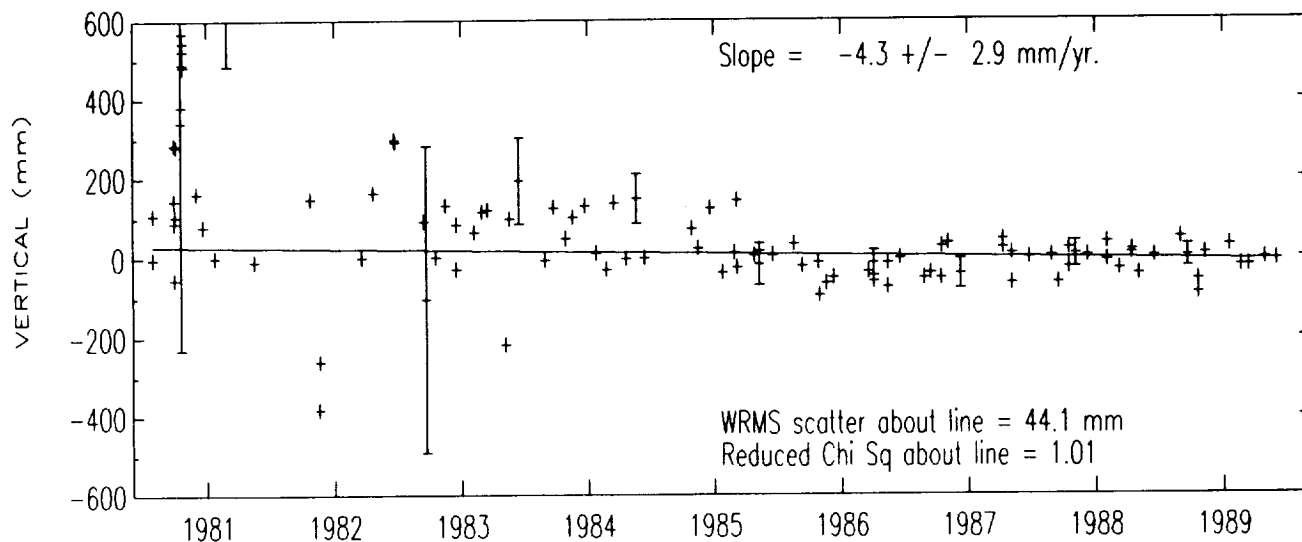
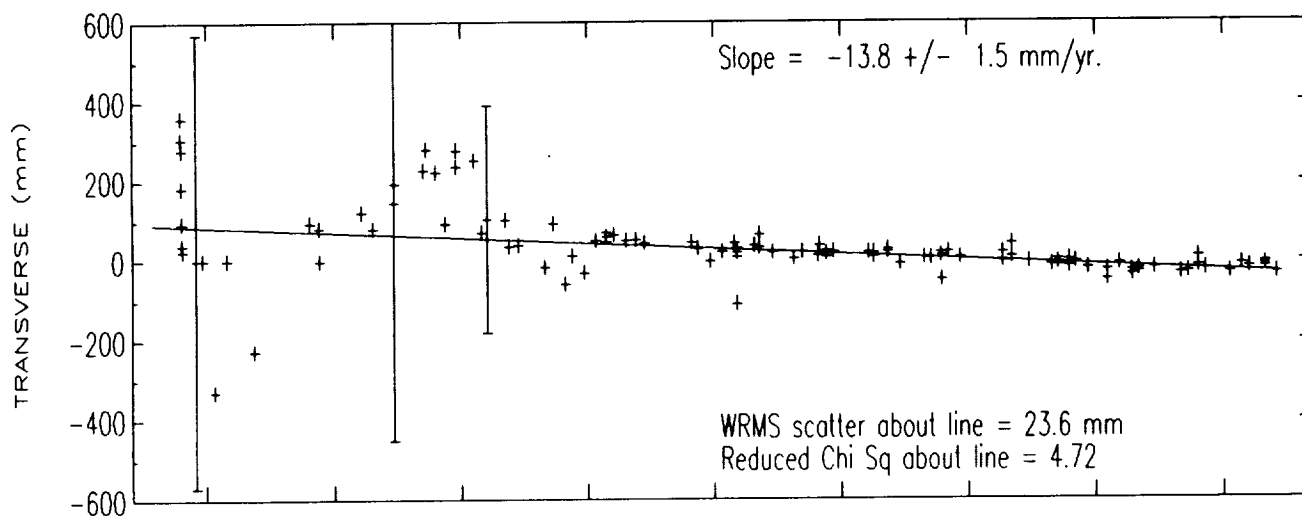
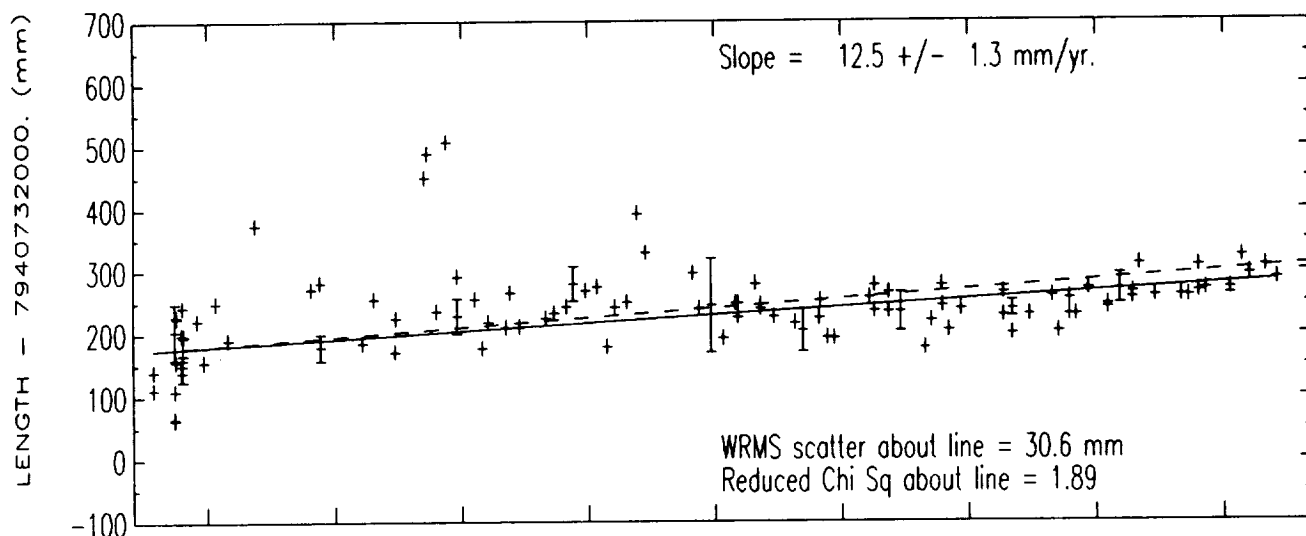
6 Observations



HRAS 085 TO ONSALA60

(Length = 7940 km)

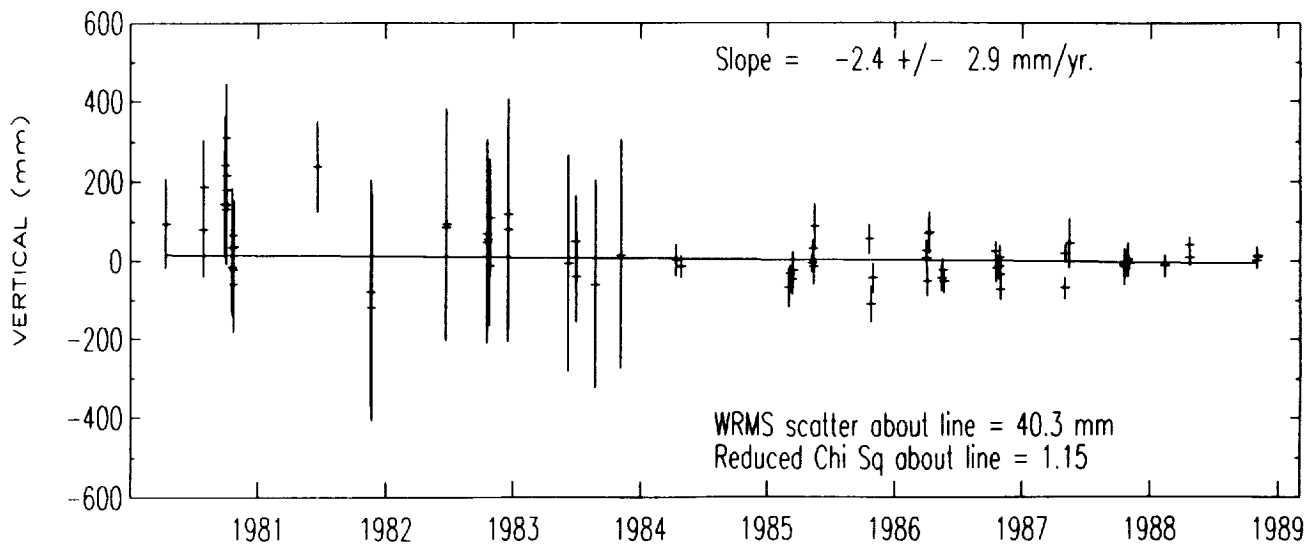
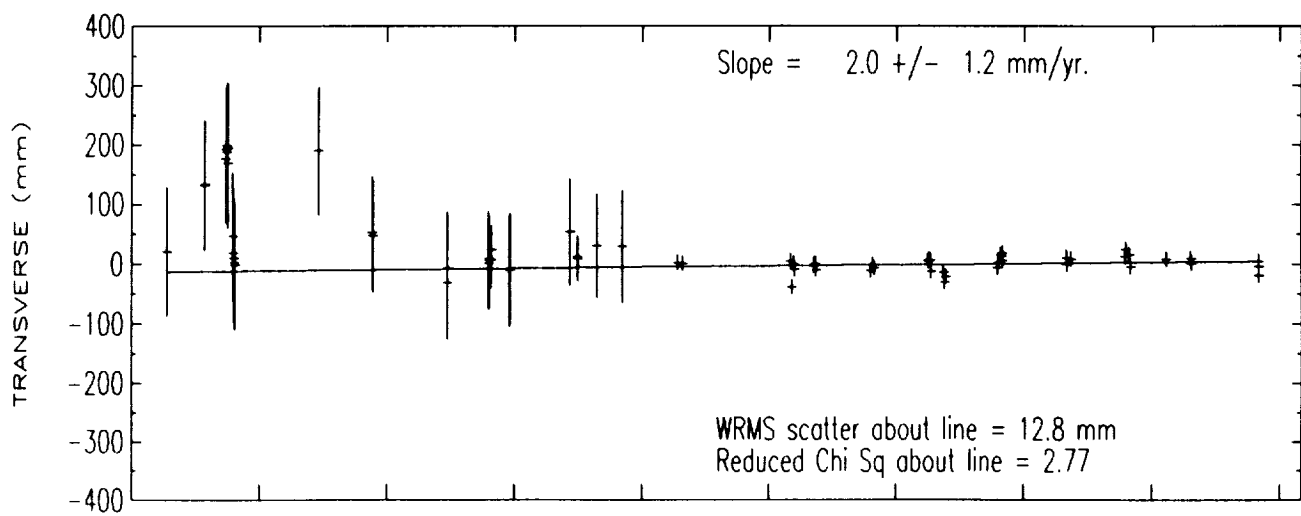
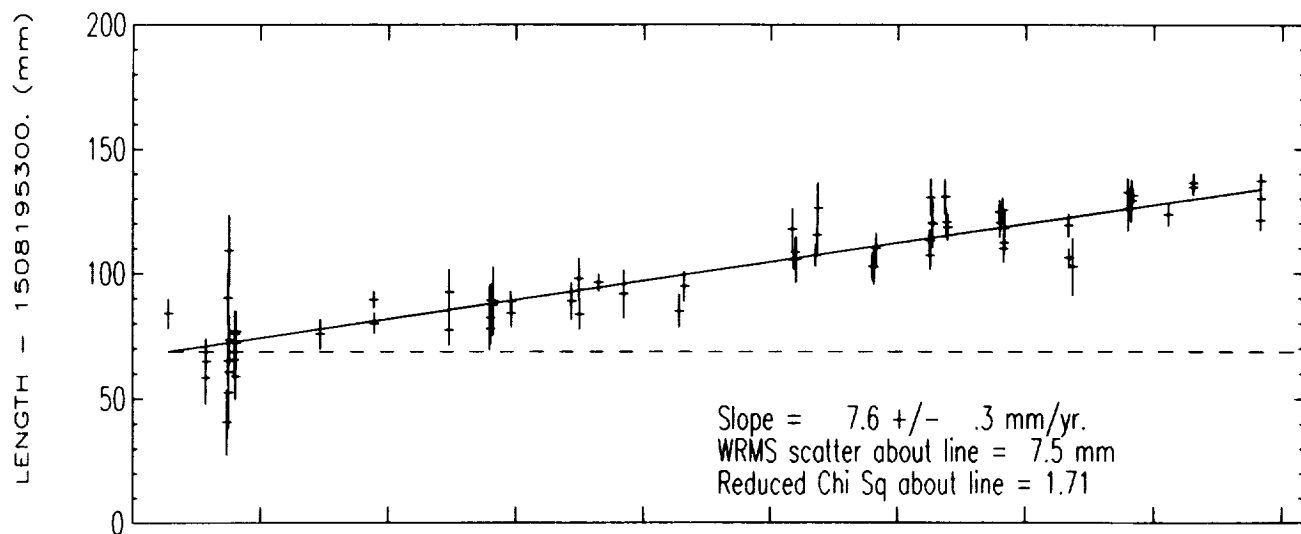
108 Observations



HRAS 085 TO OVRO 130

(Length = 1508 km)

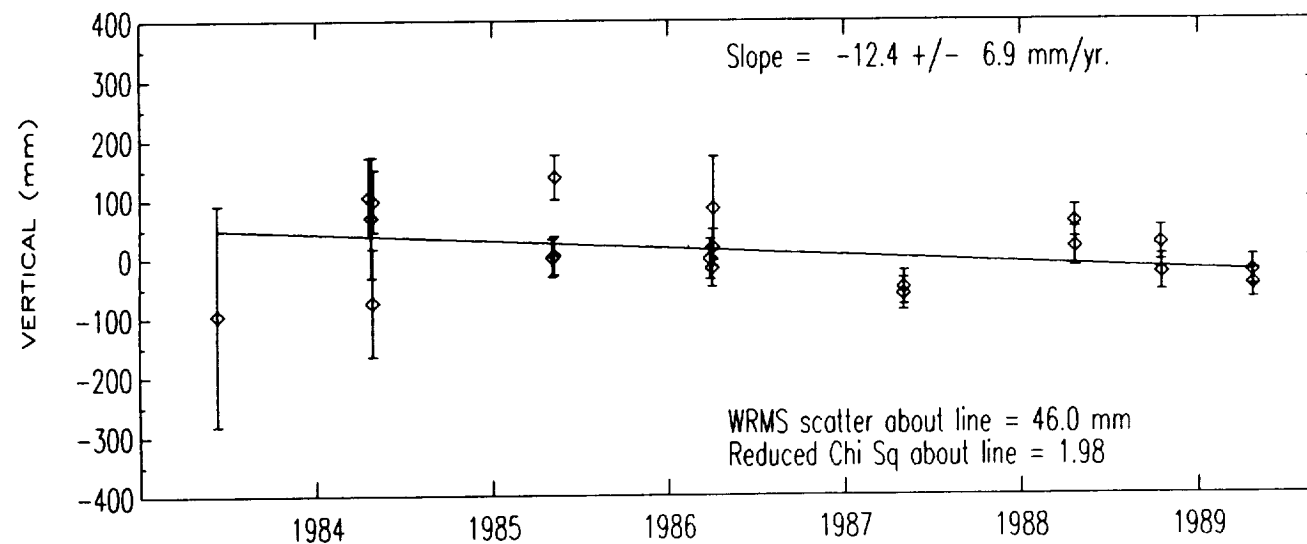
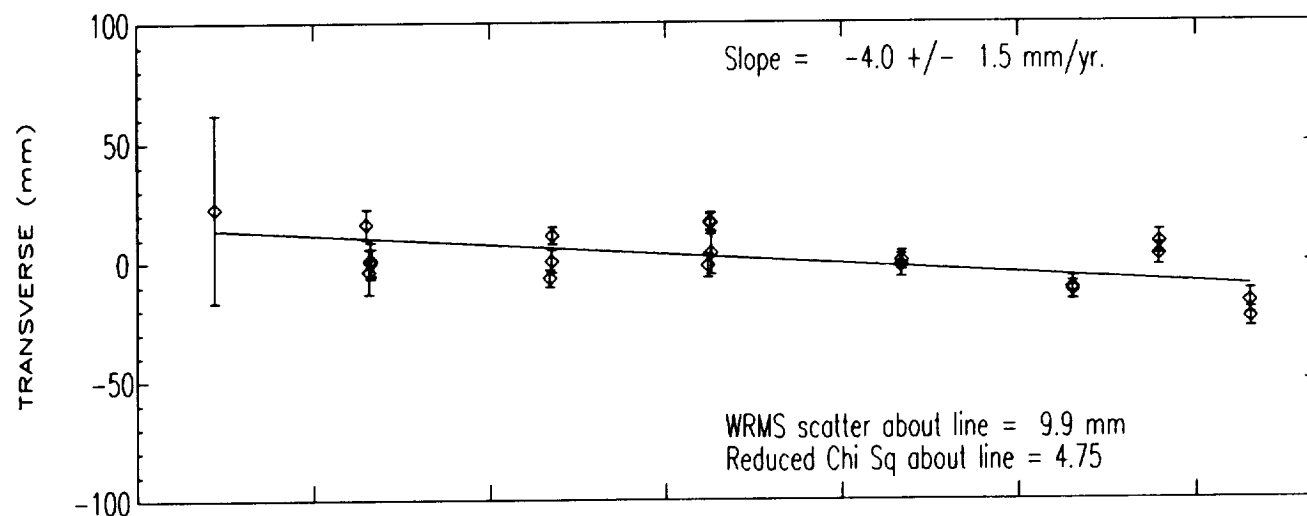
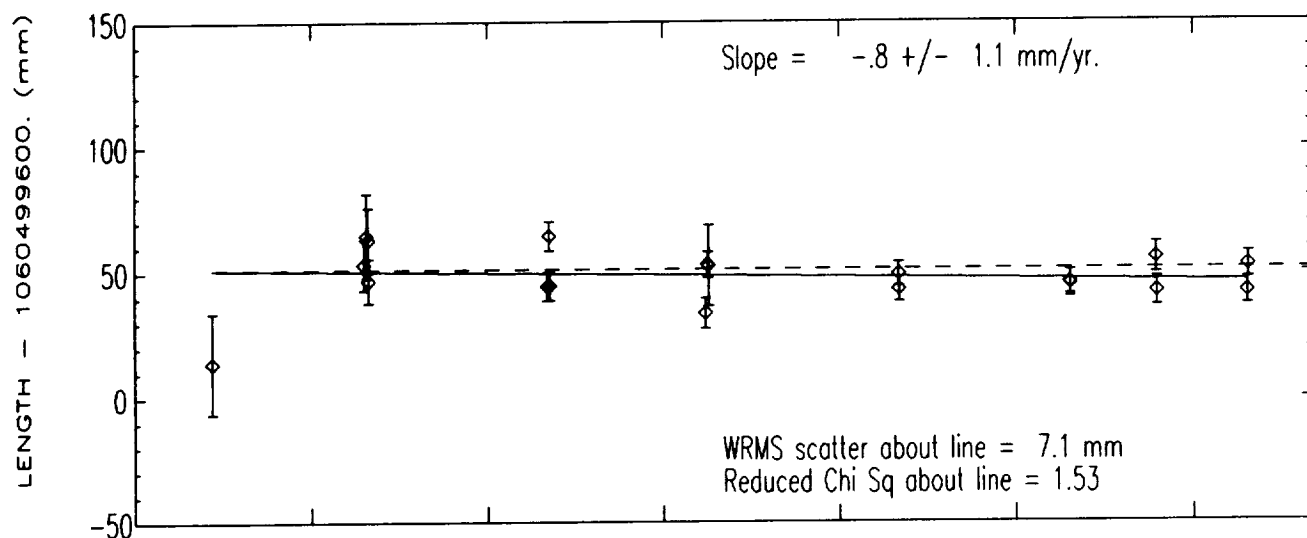
73 Observations



HRAS 085 TO PLATTVIL

(Length = 1060 km)

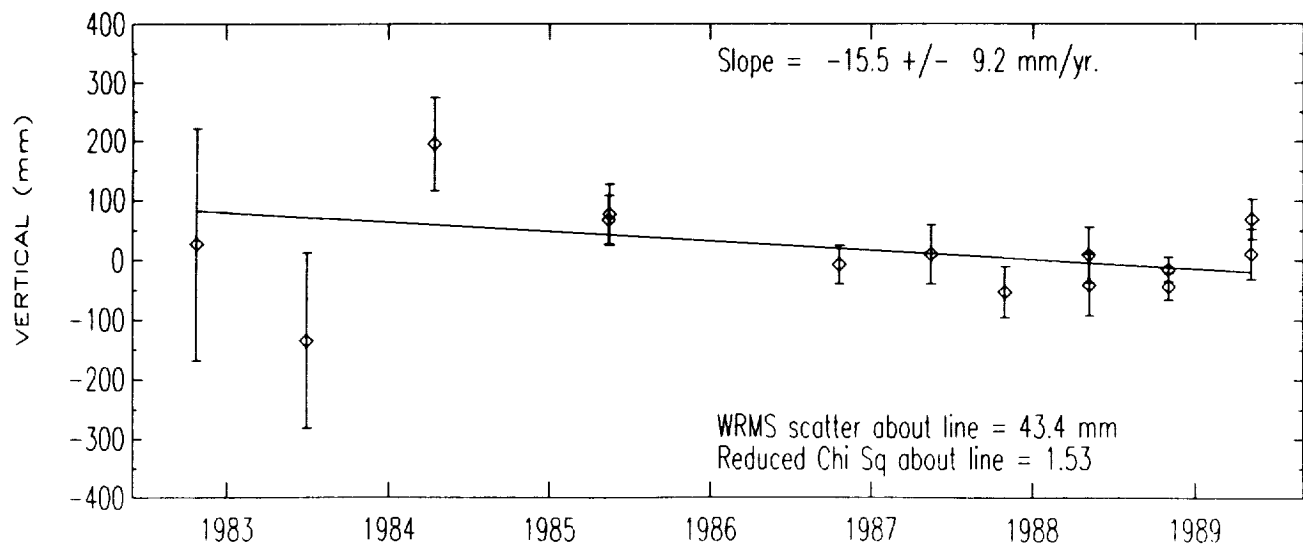
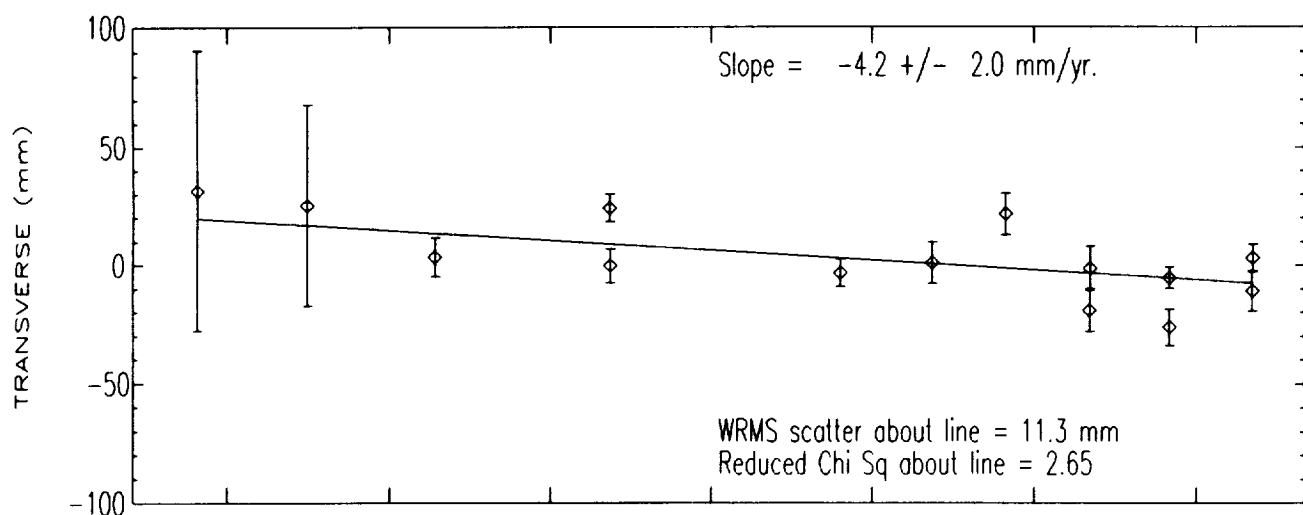
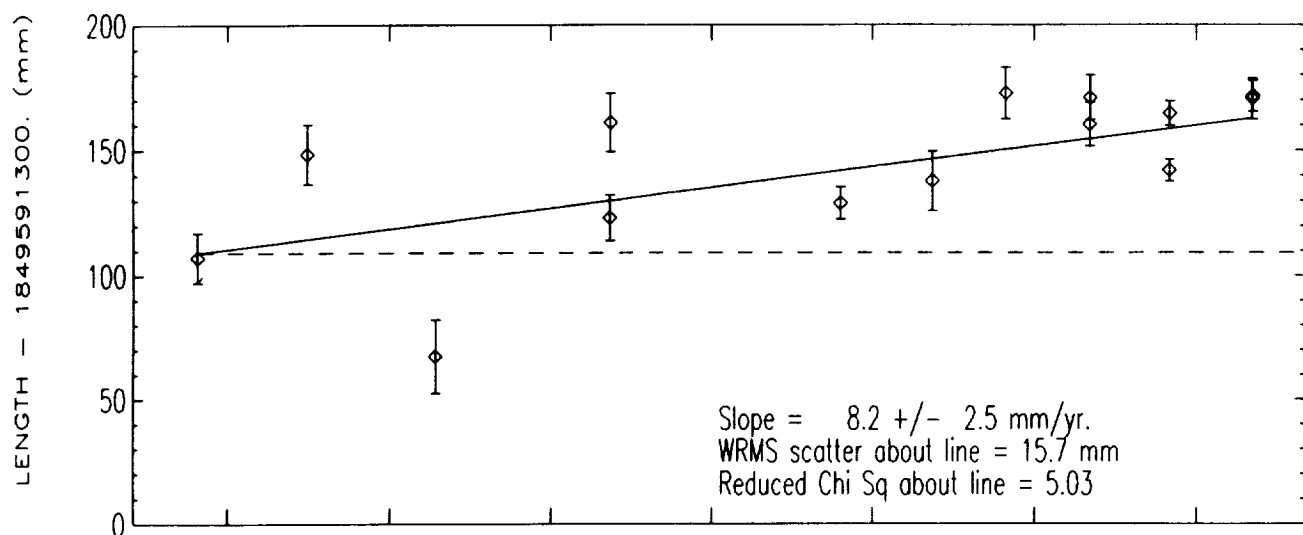
20 Observations



HRAS 085 TO QUINCY

(Length = 1849 km)

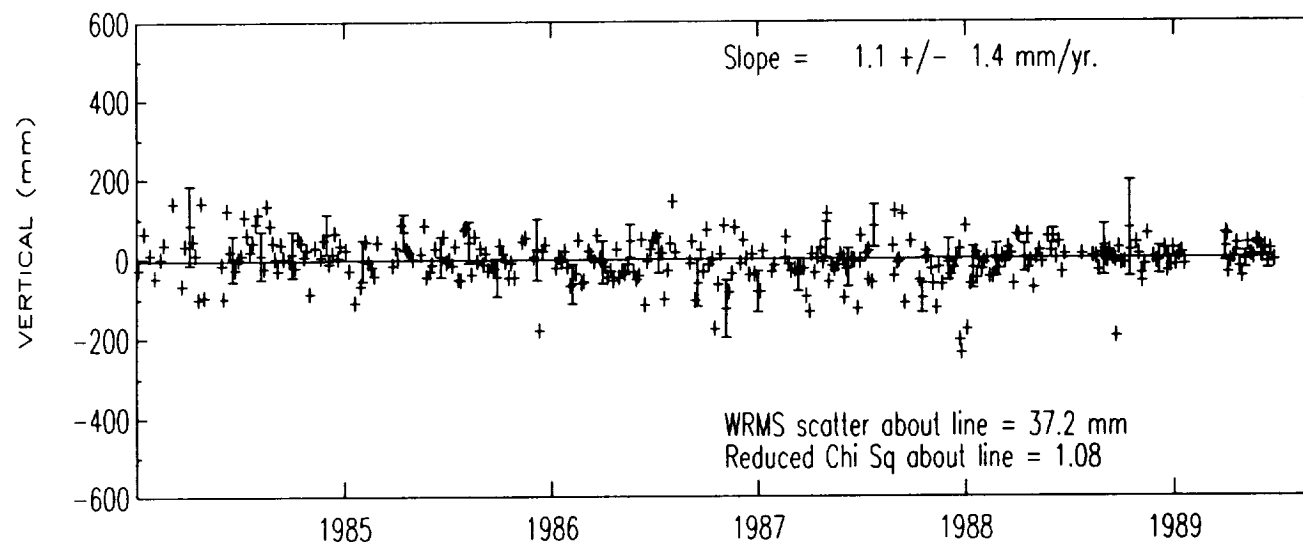
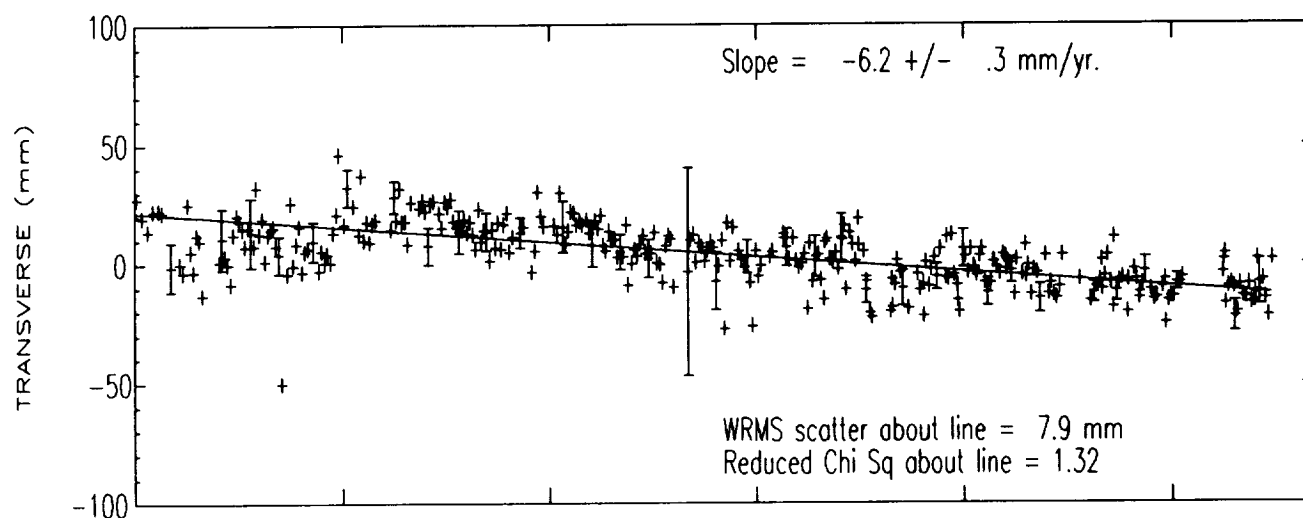
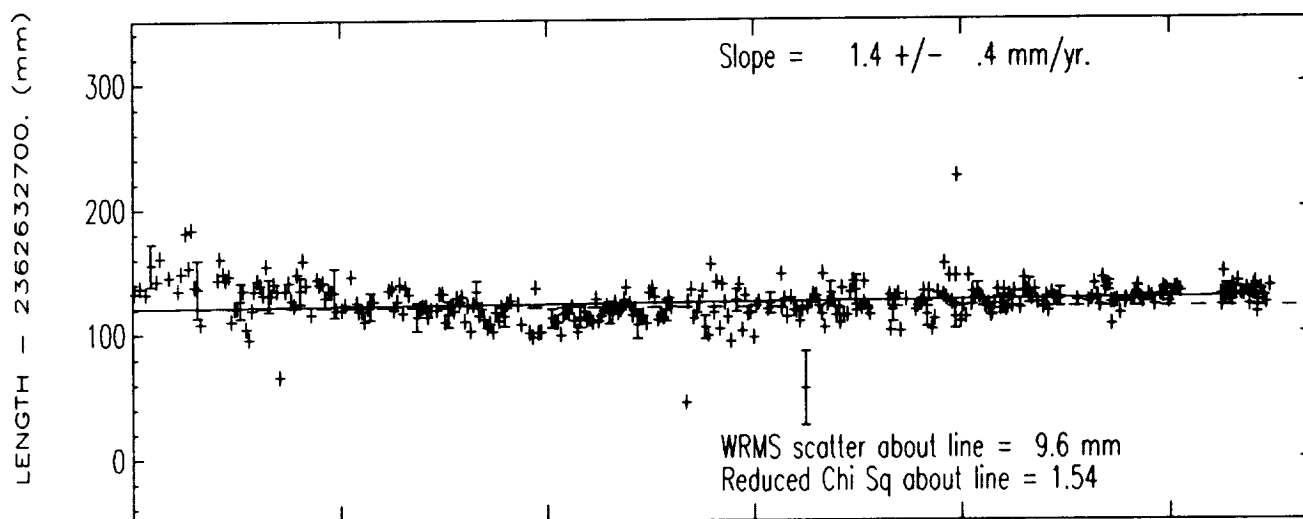
14 Observations



HRAS 085 TO RICHMOND

(Length = 2362 km)

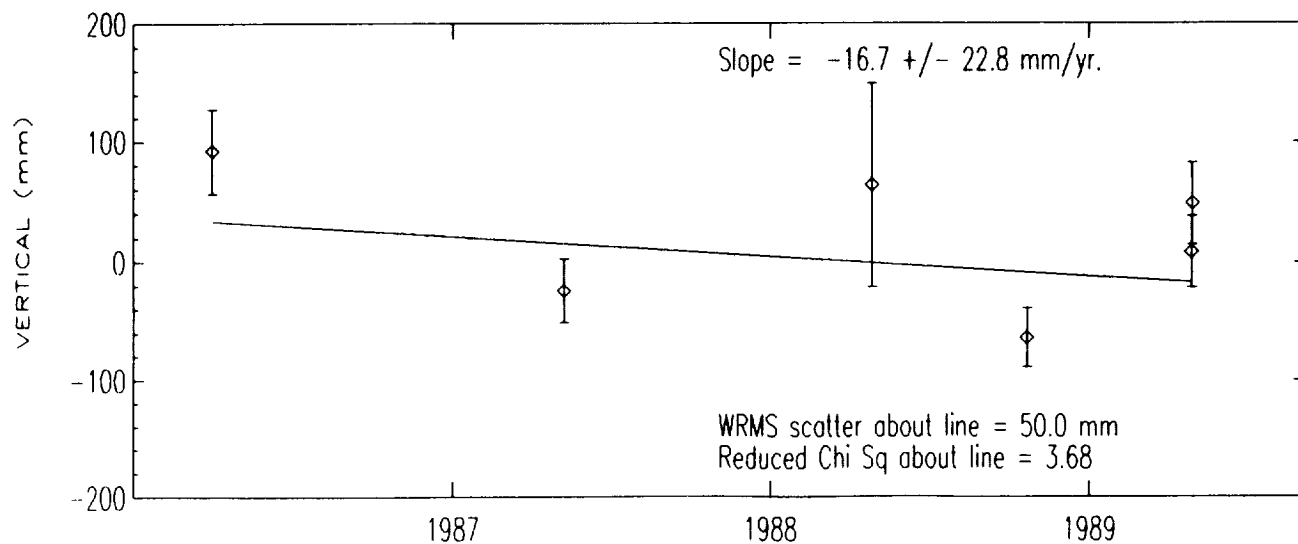
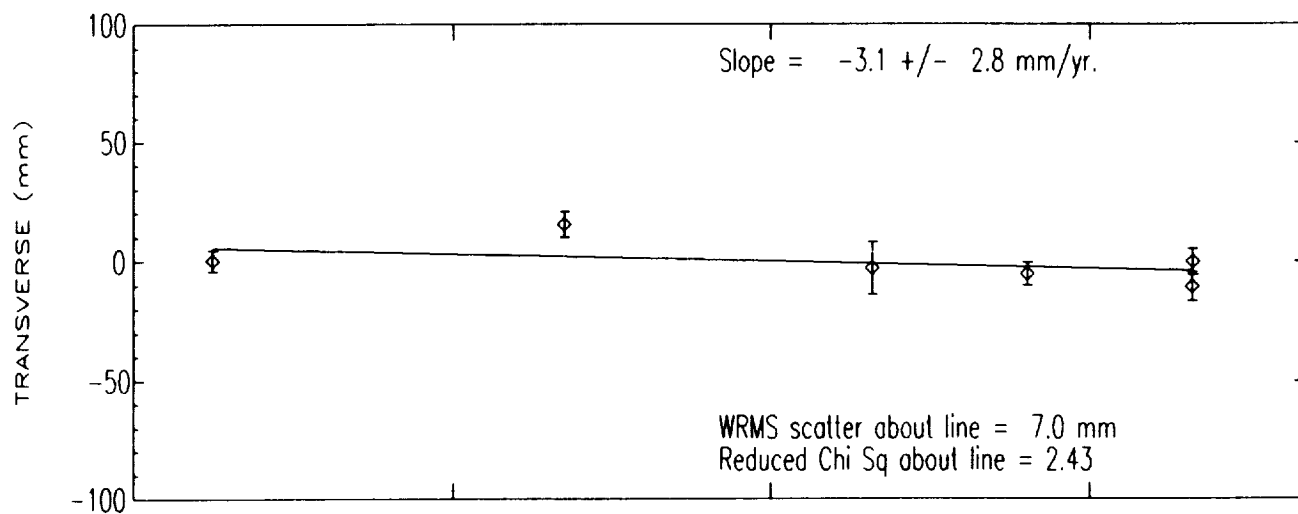
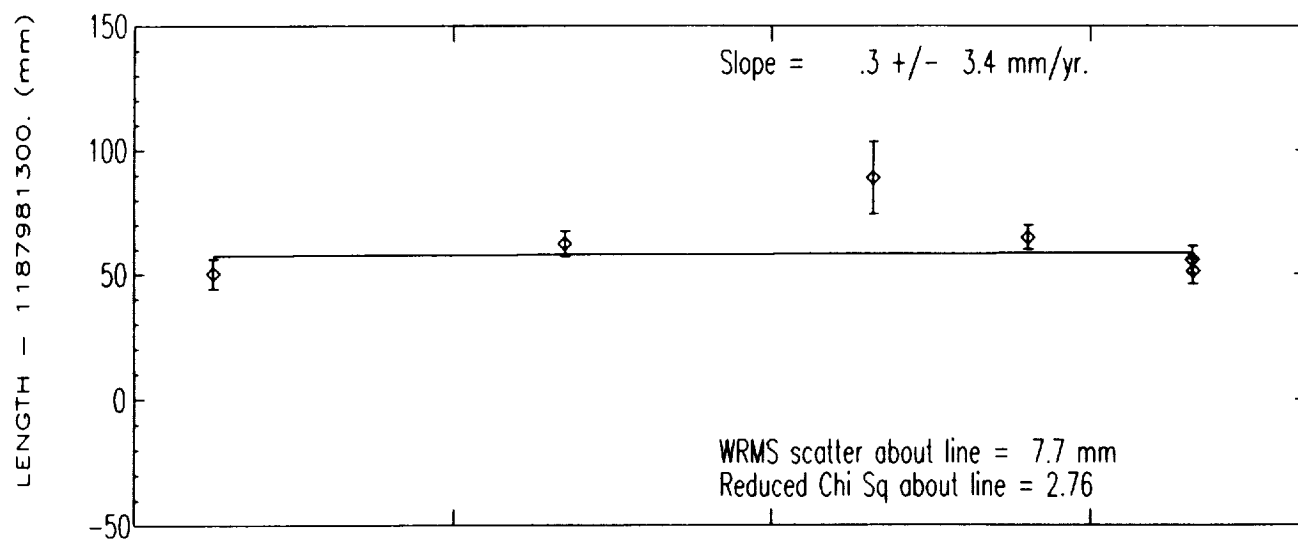
342 Observations



HRAS 085 TO VERNAL

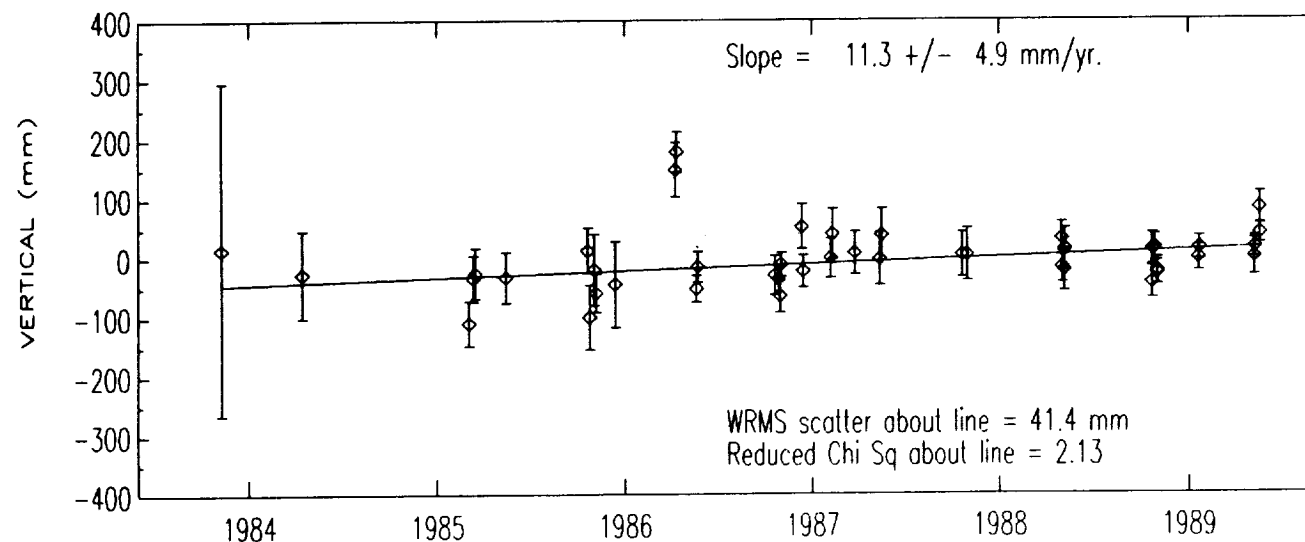
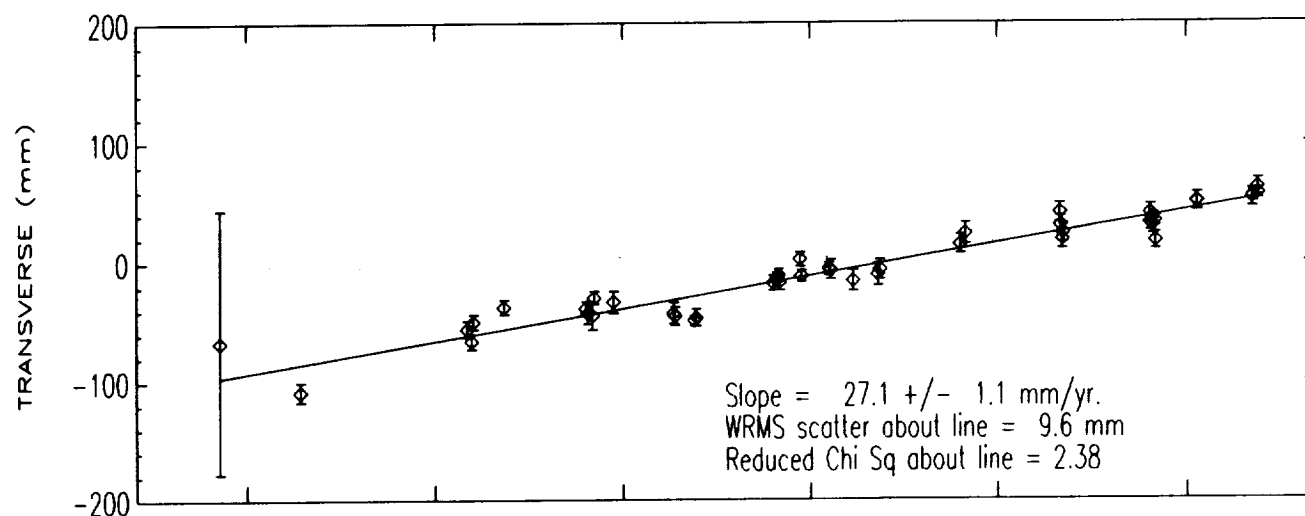
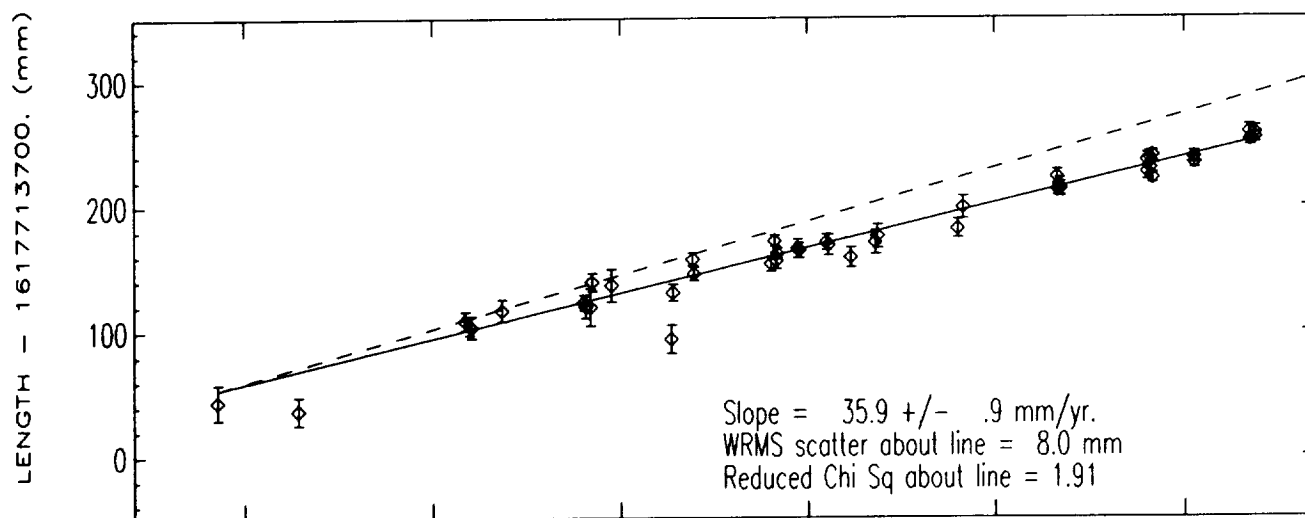
(Length = 1187 km)

6 Observations



HRAS 085 TO VNDNBERG (Length = 1617 km)

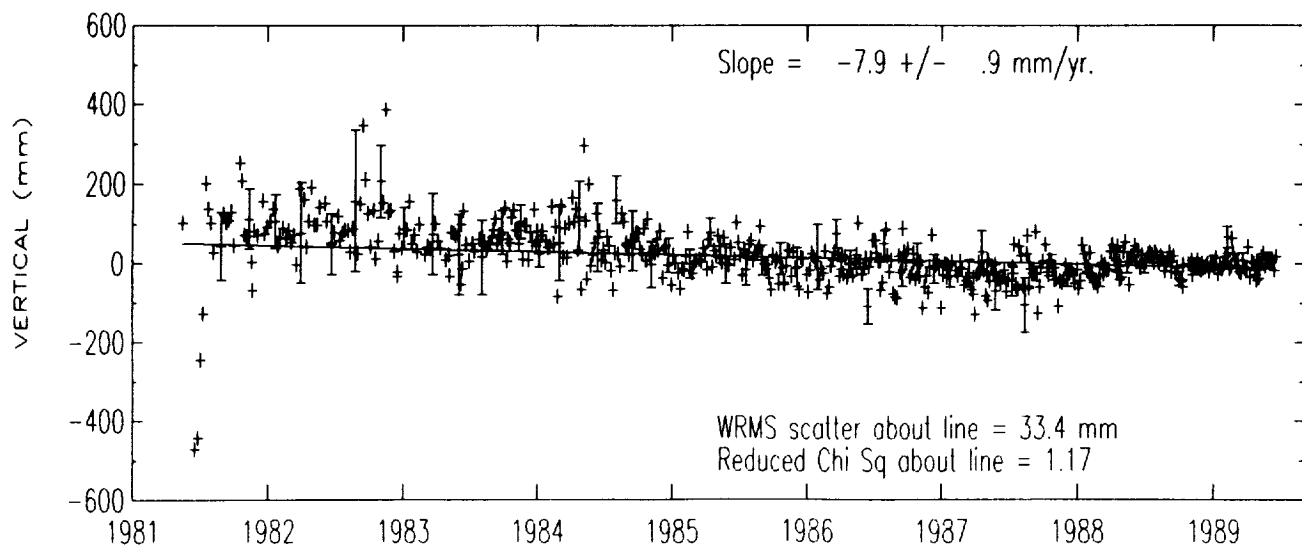
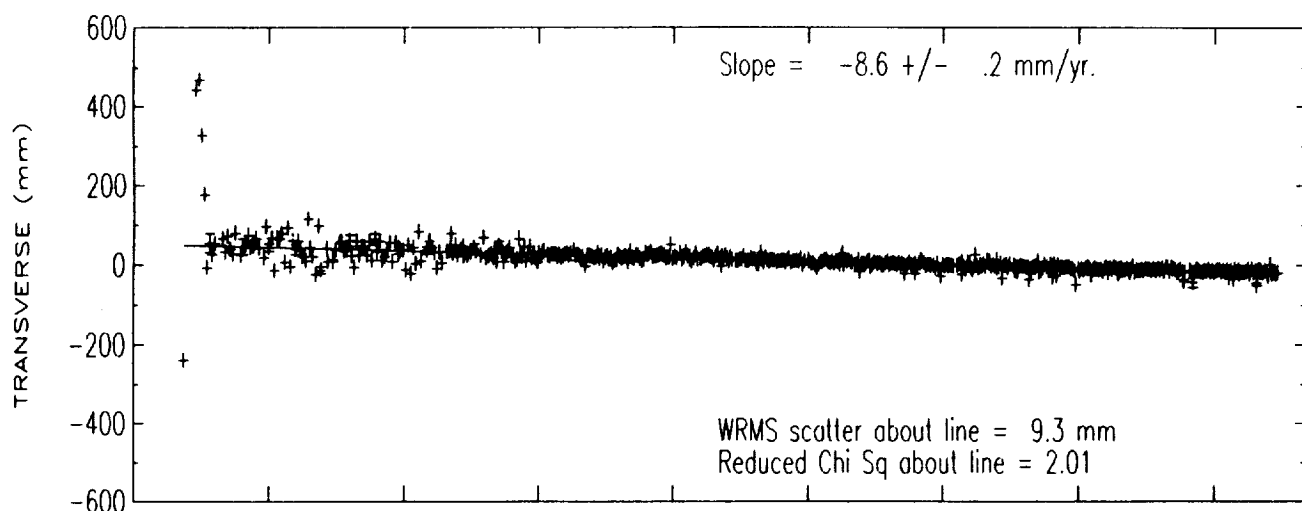
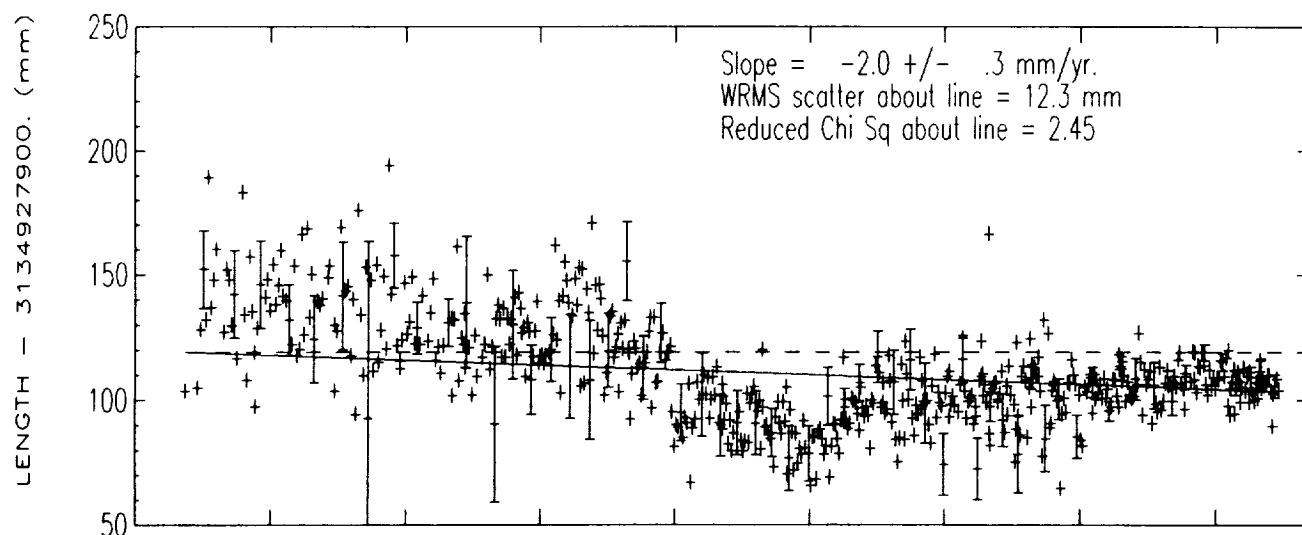
44 Observations



HRAS 085 TO WESTFORD

(Length = 3134 km)

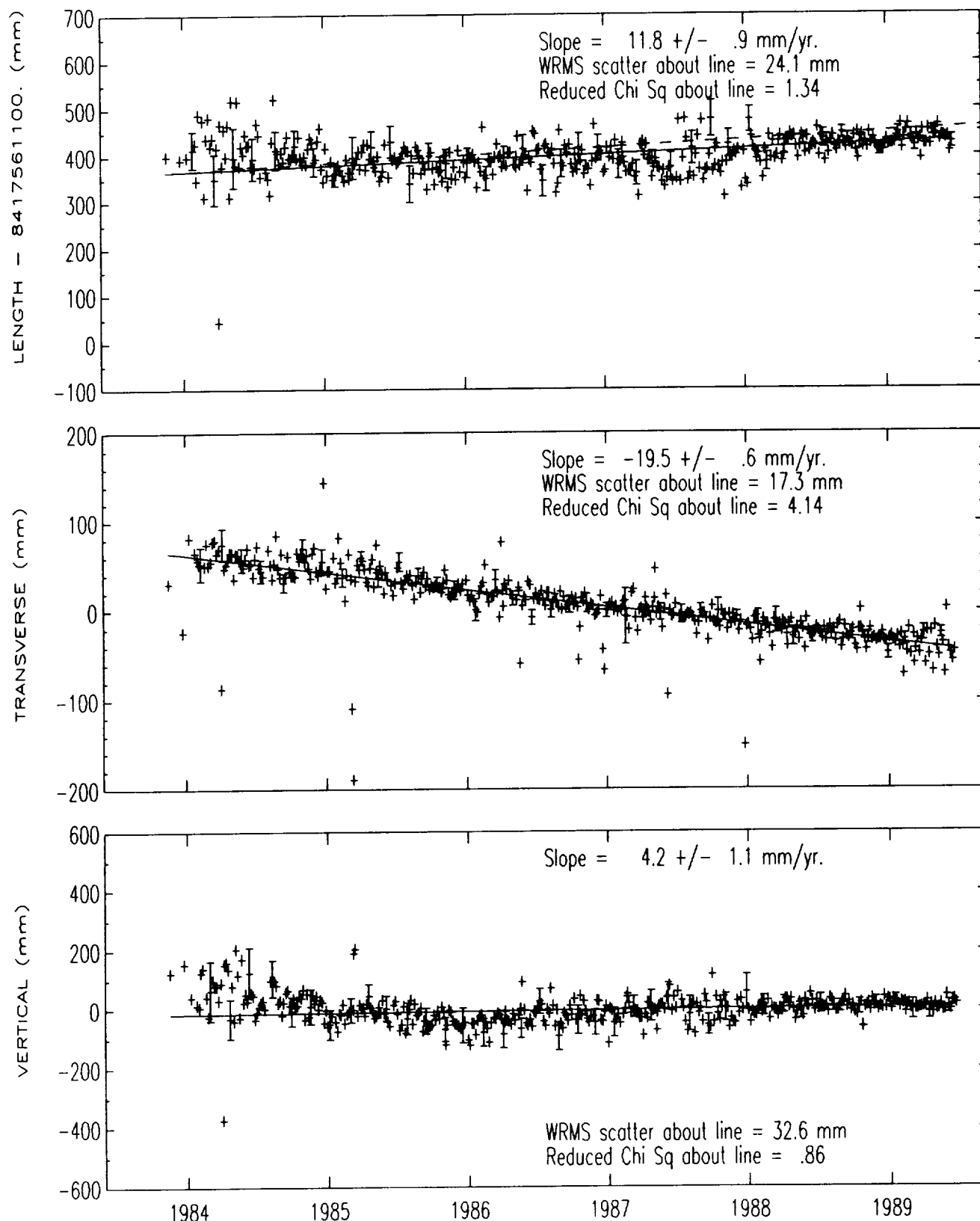
586 Observations



HRAS 085 TO WETTZELL

(Length = 8417 km)

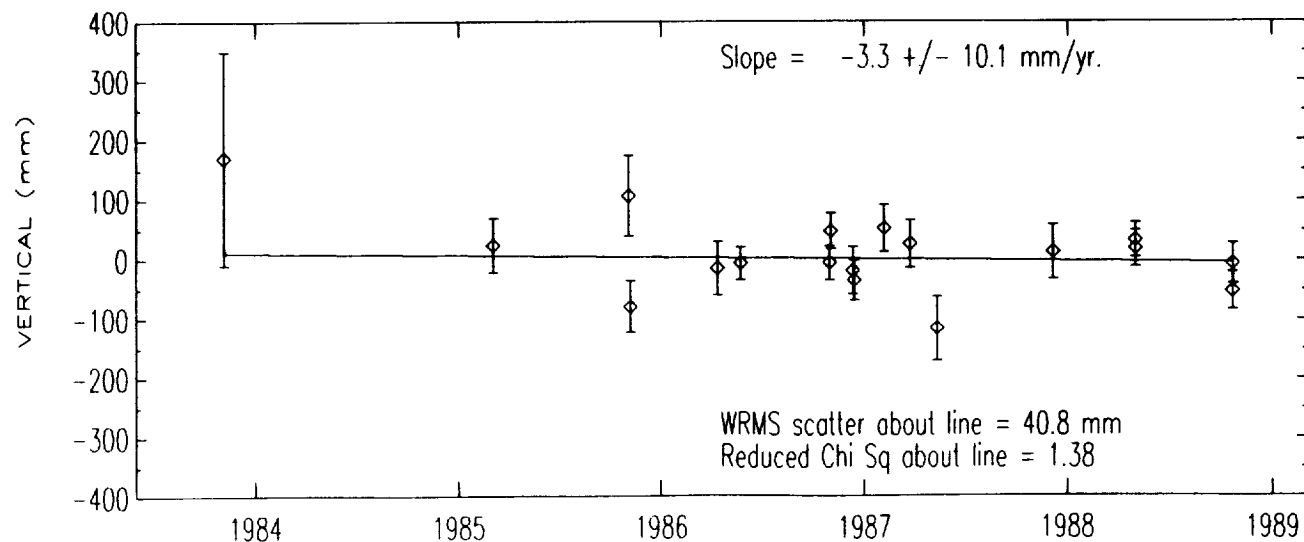
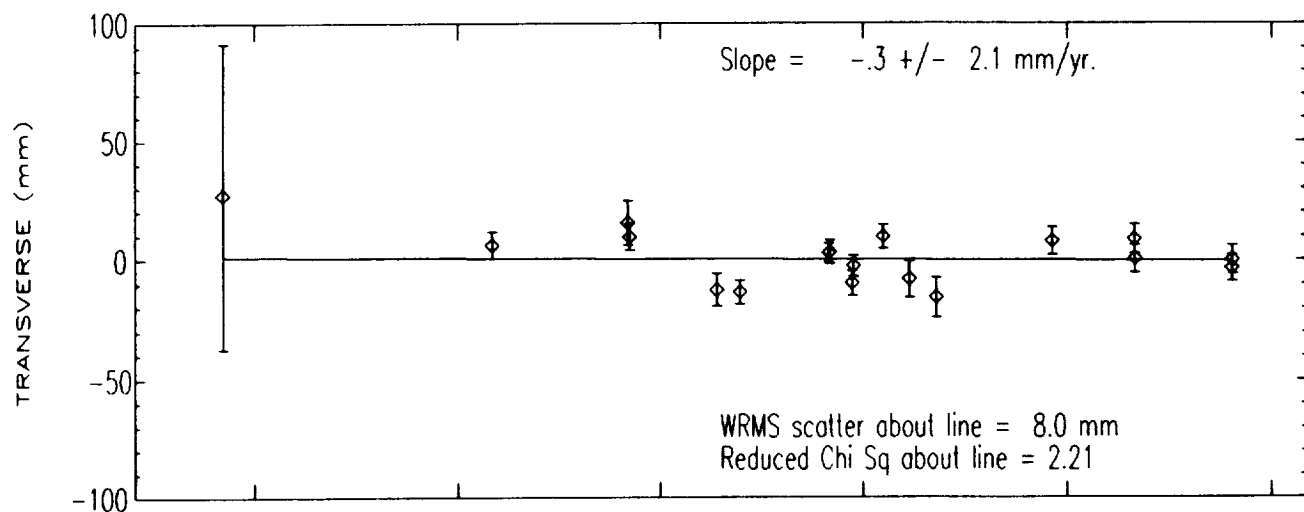
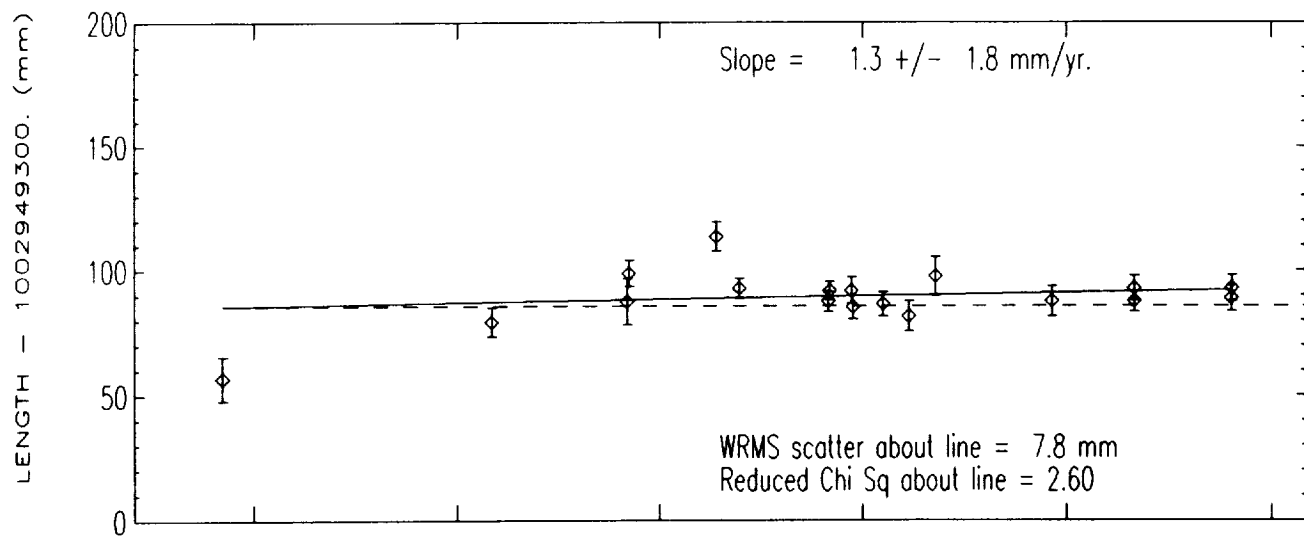
404 Observations



HRAS 085 TO YUMA

(Length = 1002 km)

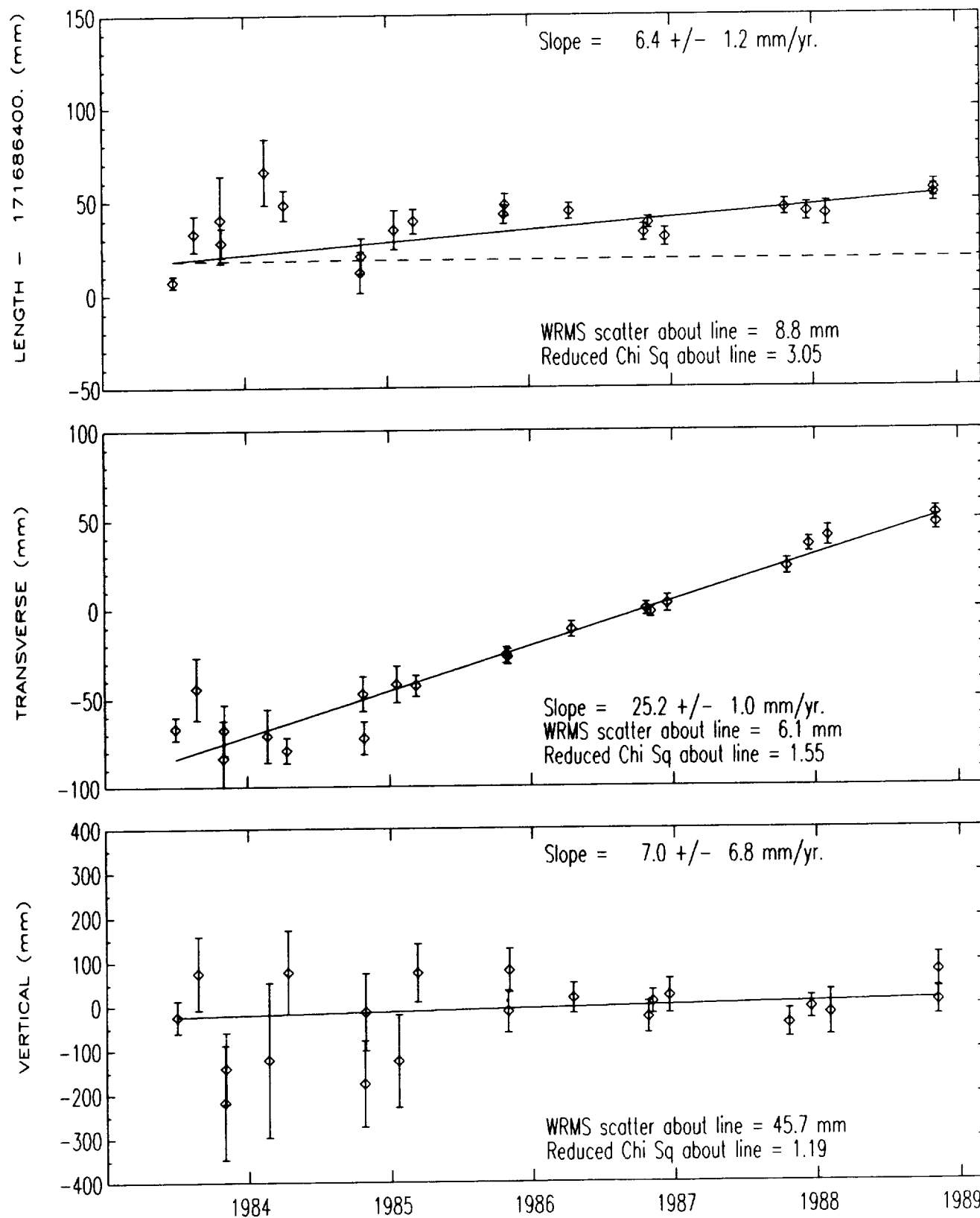
18 Observations



JPL MV1 TO MOJAVE12

(Length = 171 km)

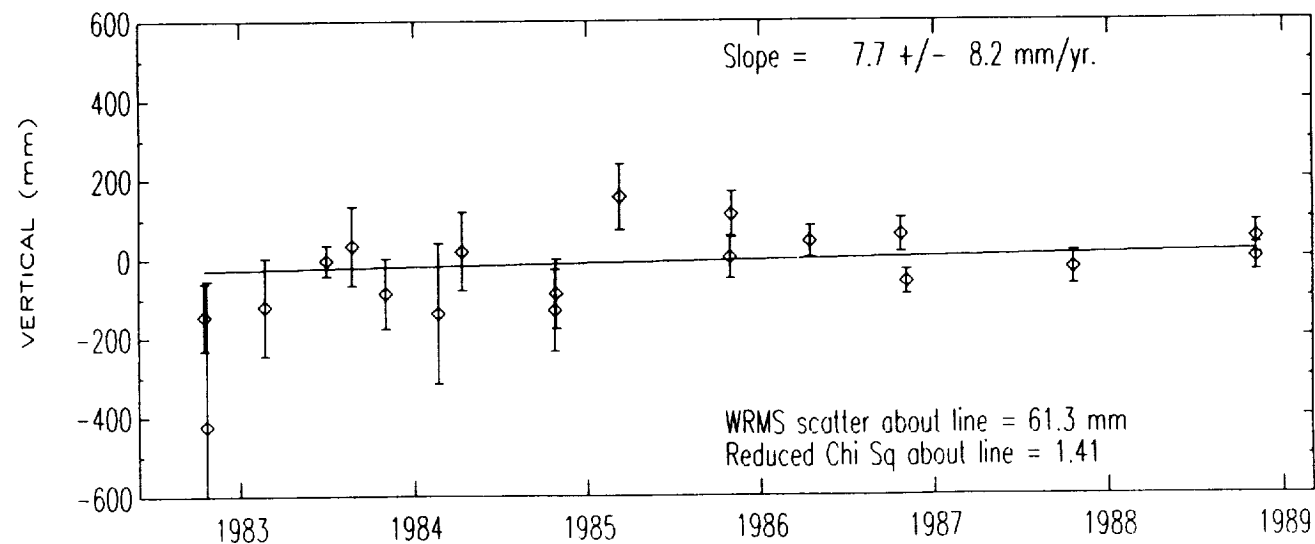
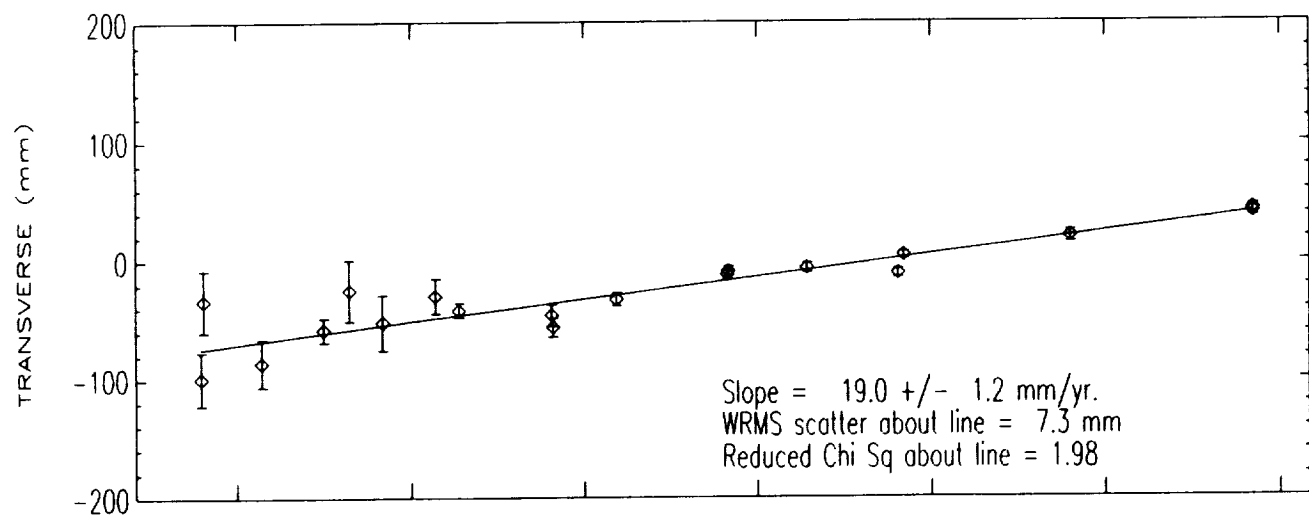
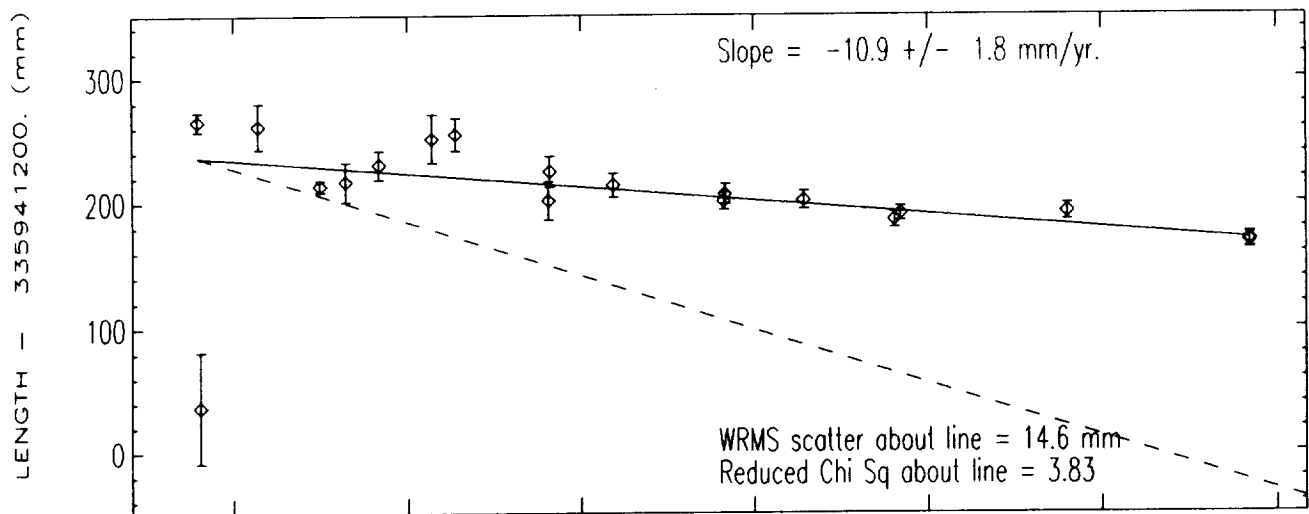
21 Observations



JPL MV1 TO OVRO 130

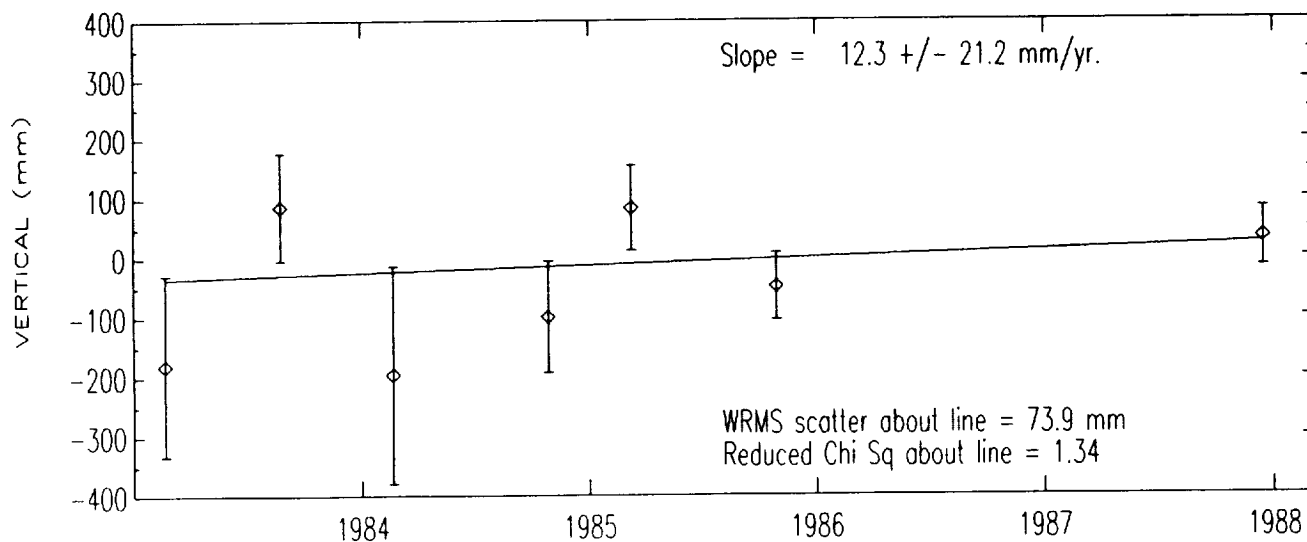
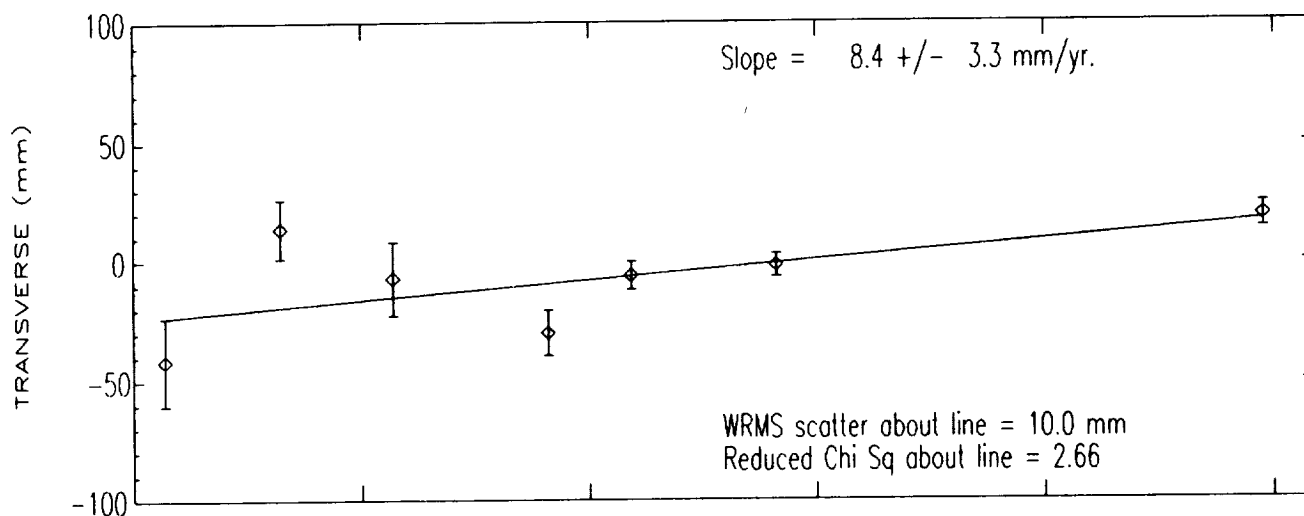
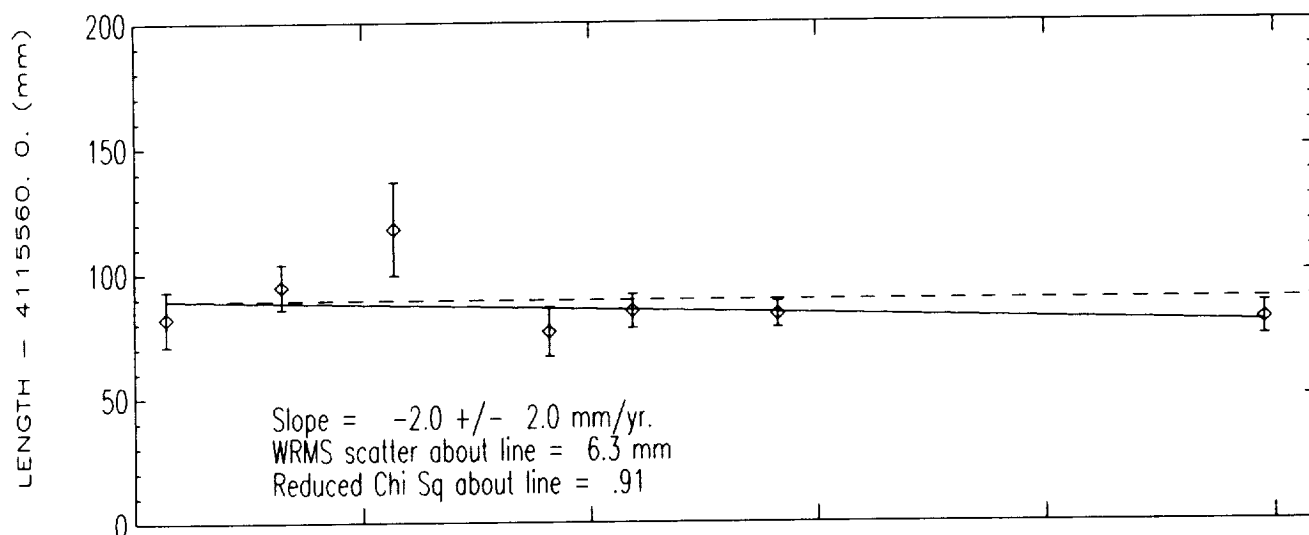
(Length = 335 km)

19 Observations



JPL MV1 TO PBLOSSOM (Length = 41 km)

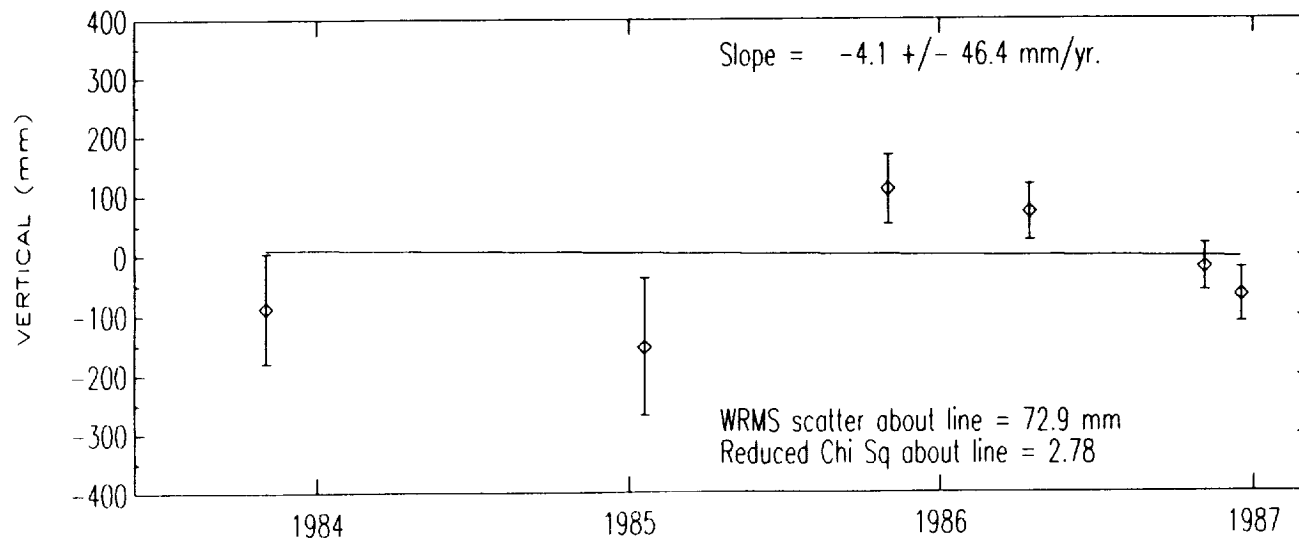
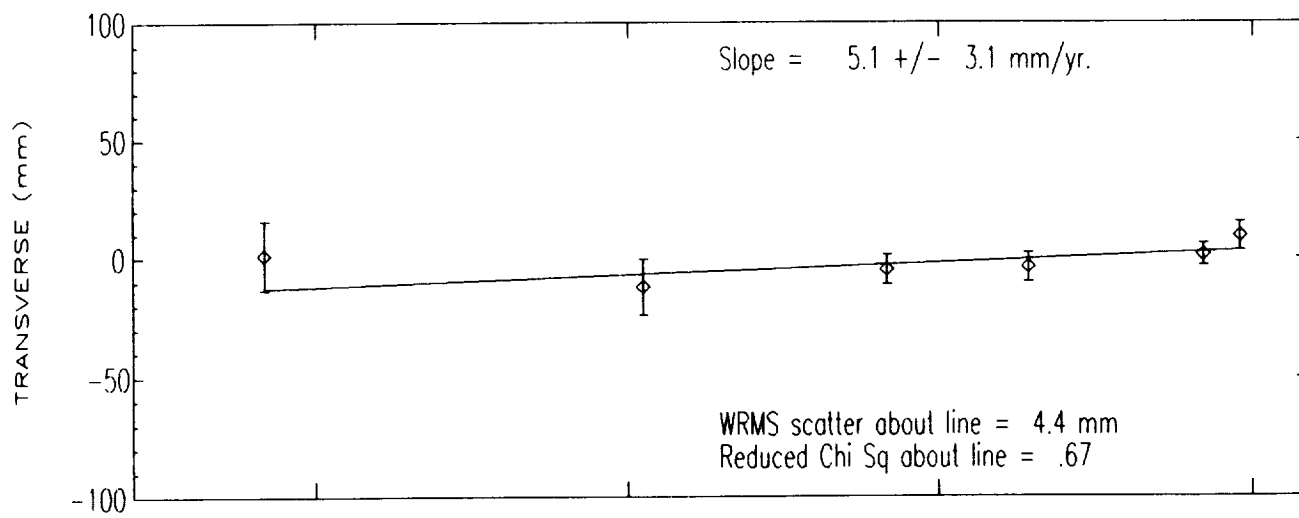
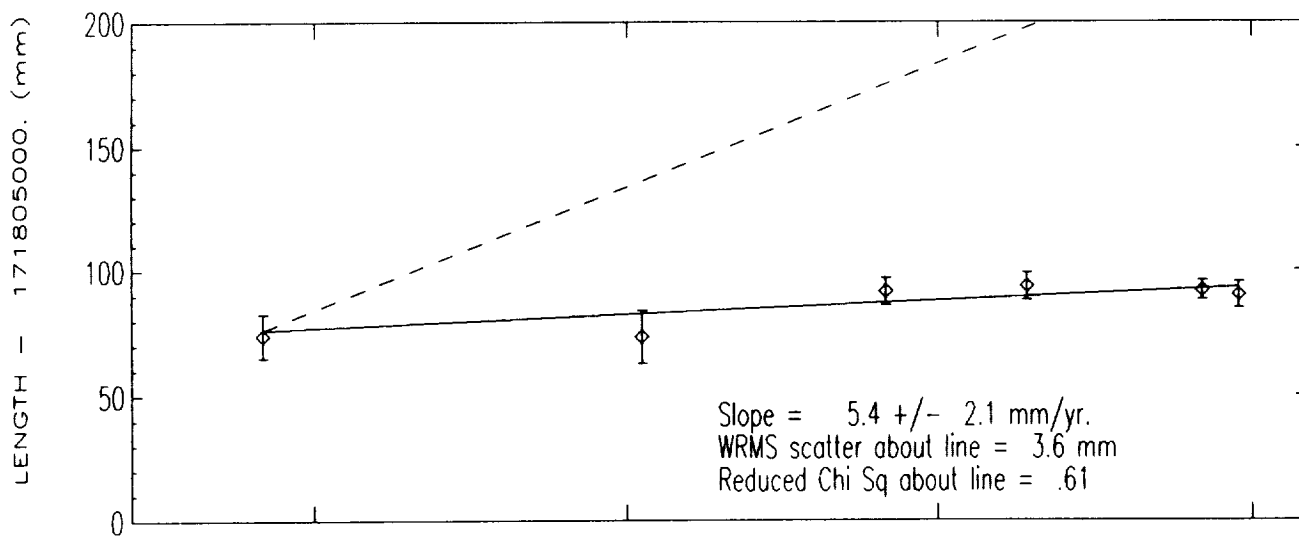
7 Observations



JPL MV1 TO PINFLATS

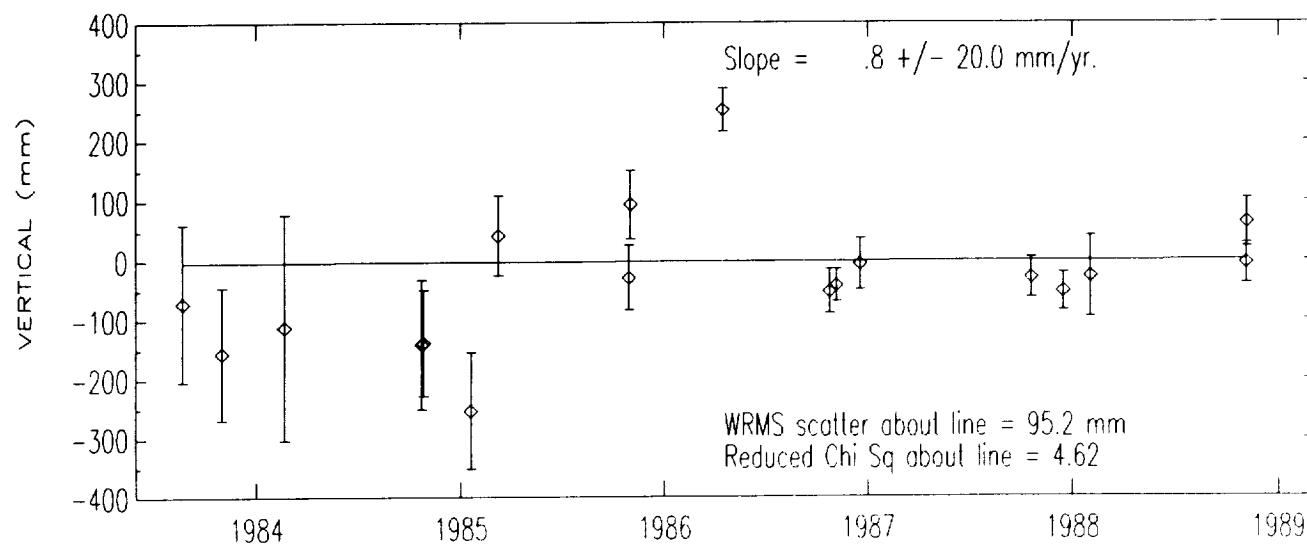
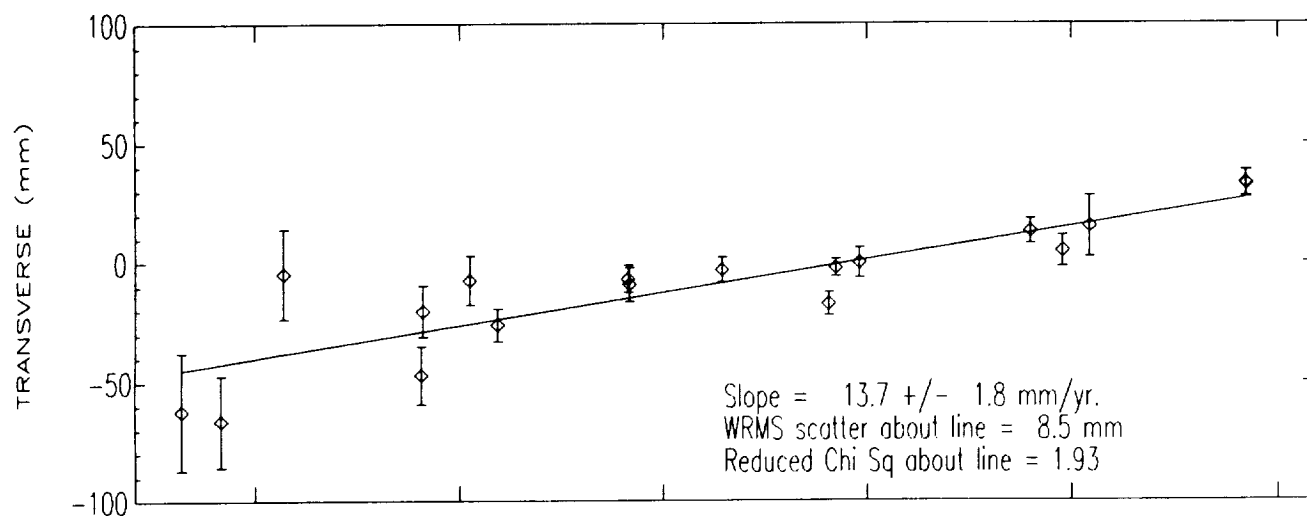
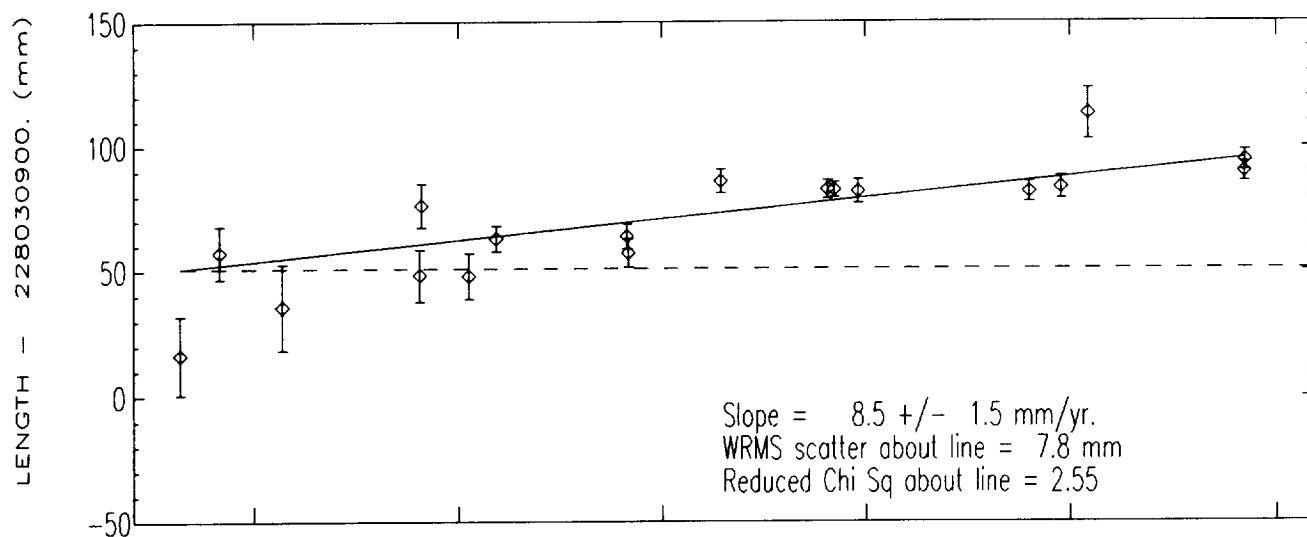
(Length = 171 km)

6 Observations



JPL MV1 TO VNDNBERG (Length = 228 km)

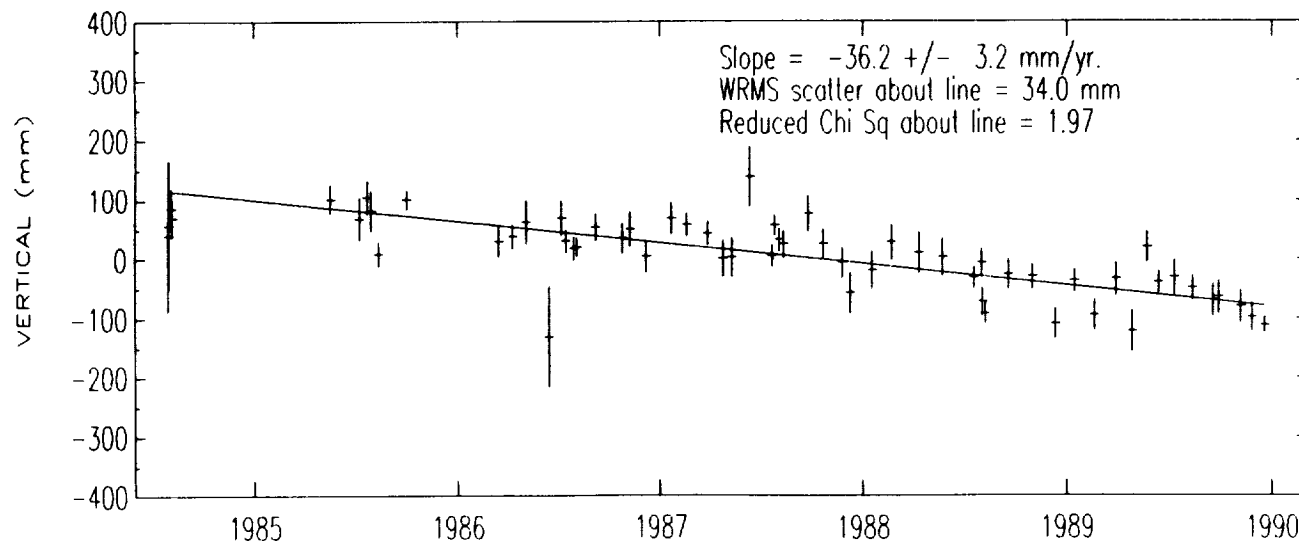
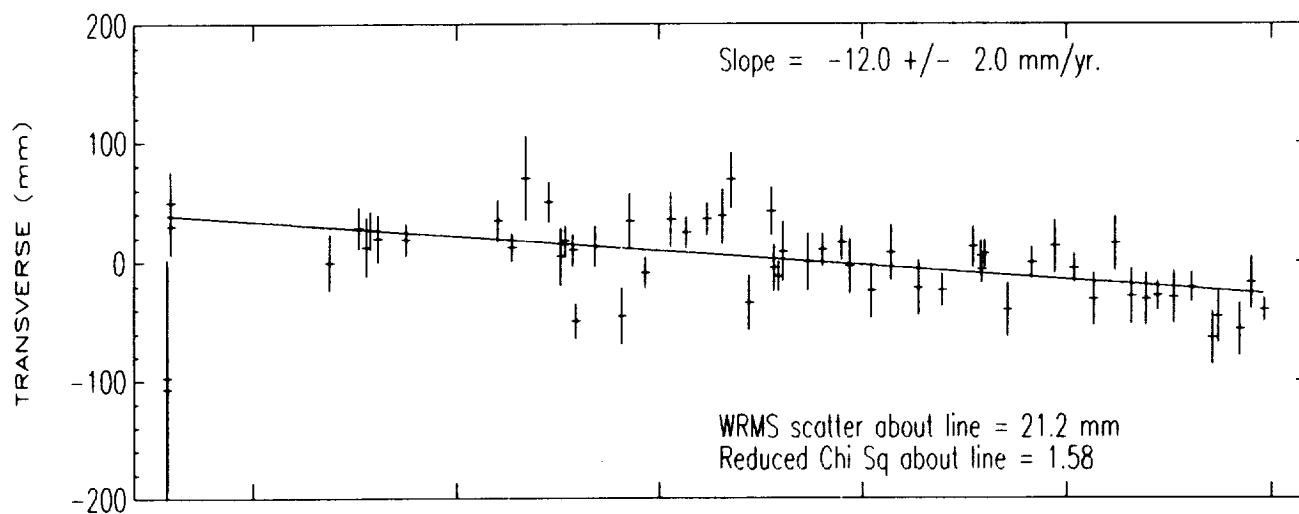
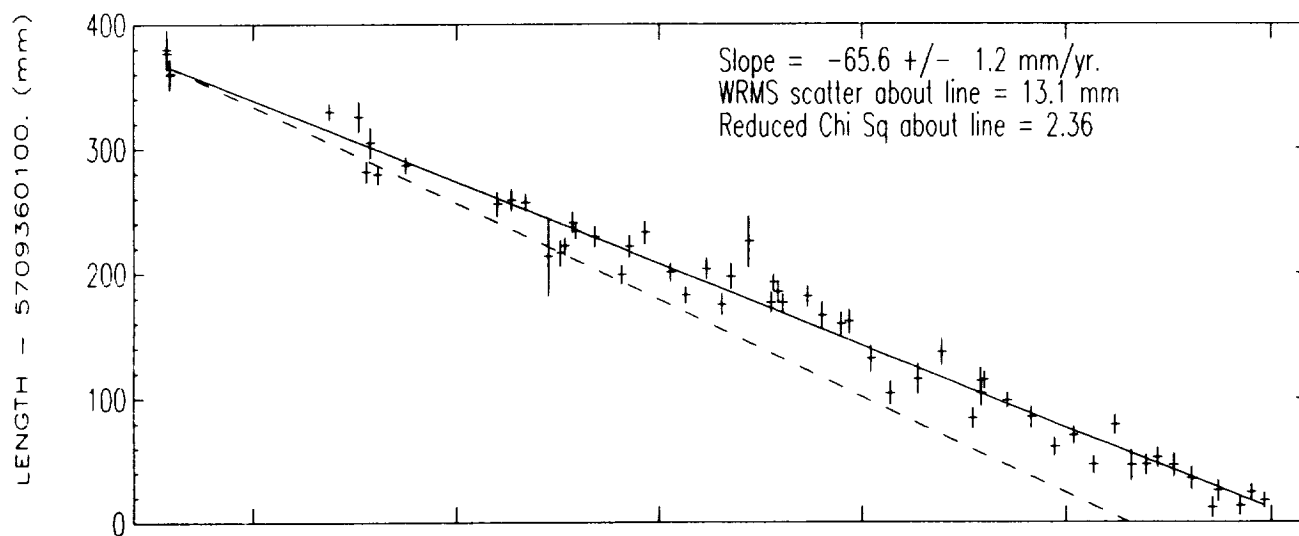
18 Observations



KASHIMA TO KAUAI

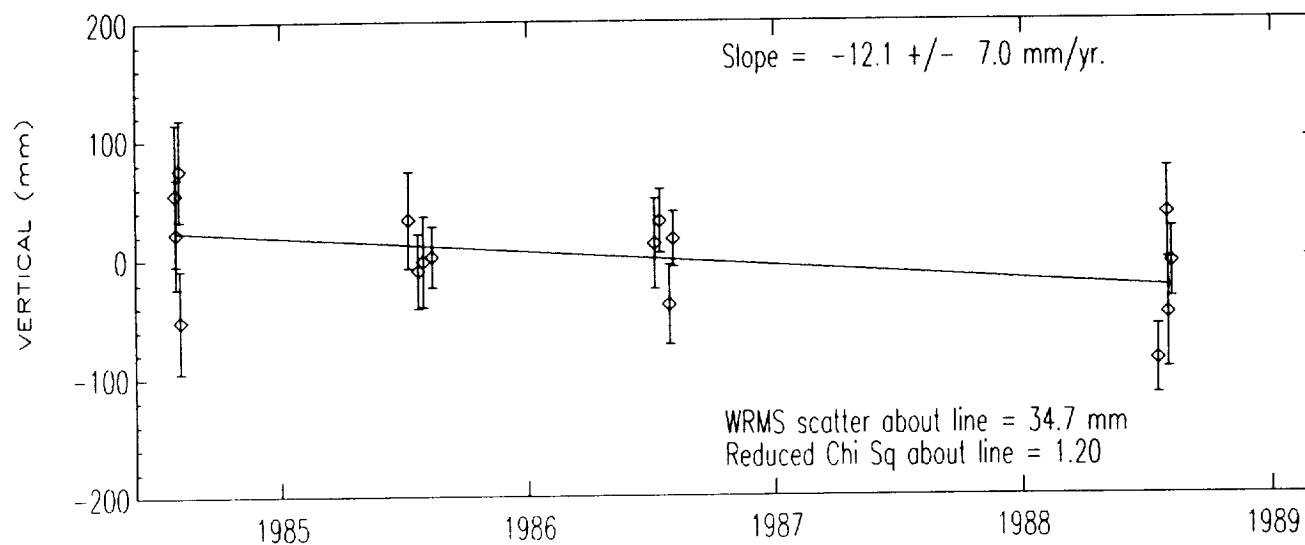
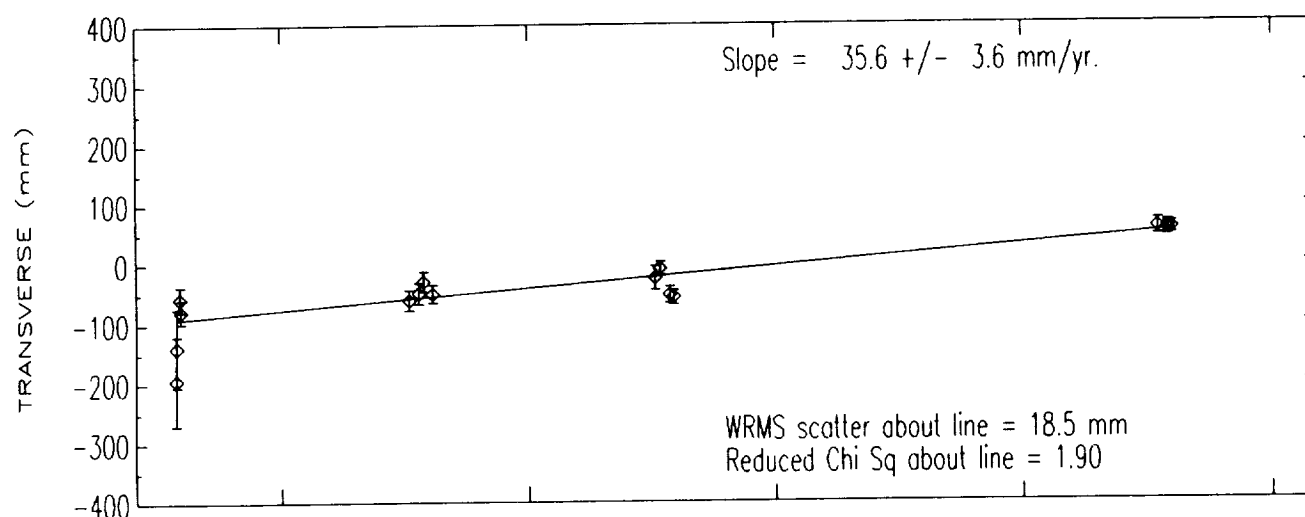
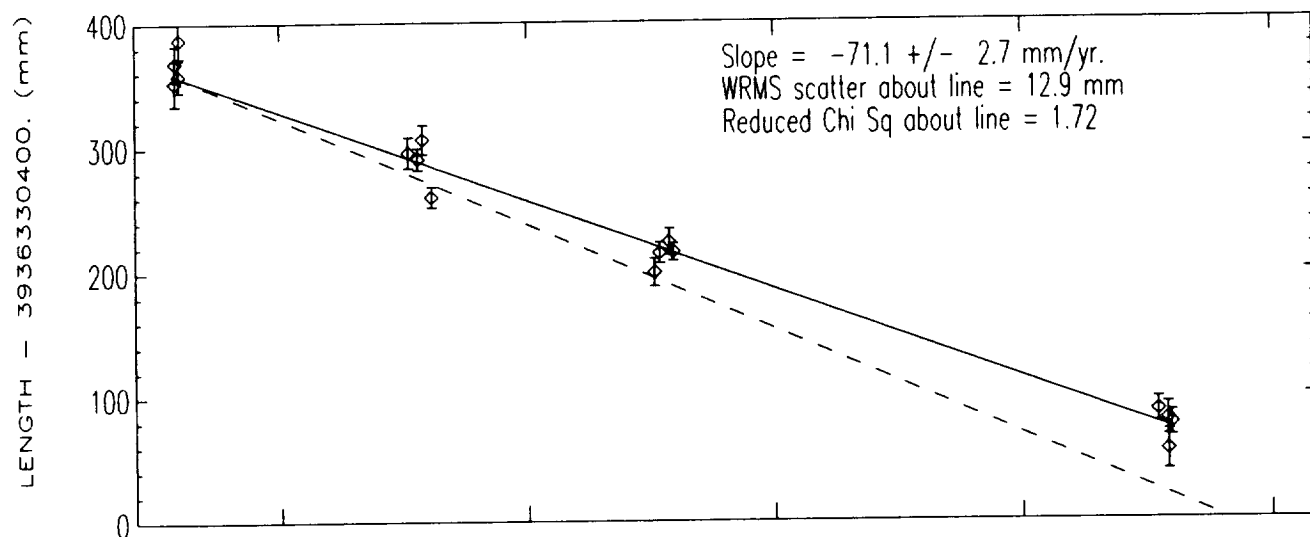
(Length = 5709 km)

60 Observations



KASHIMA TO KWAJAL26 (Length = 3936 km)

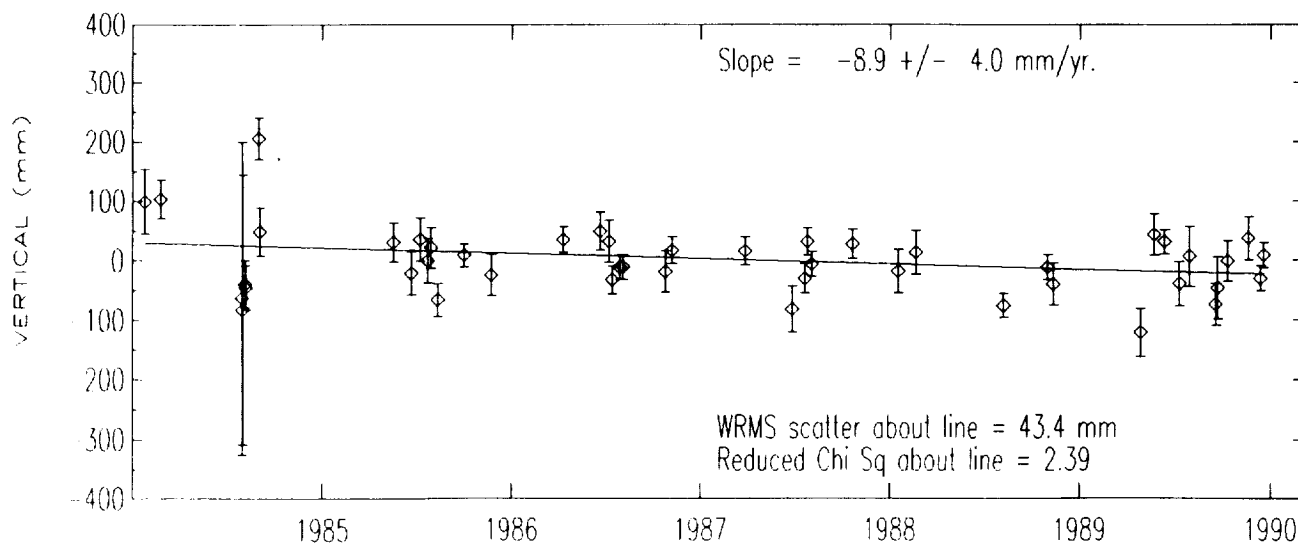
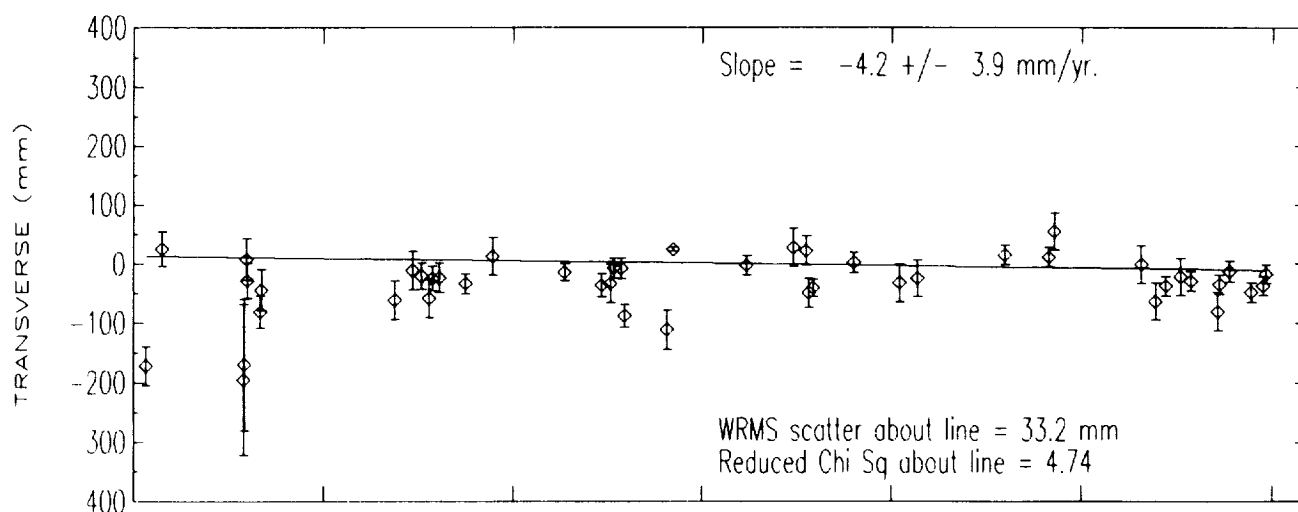
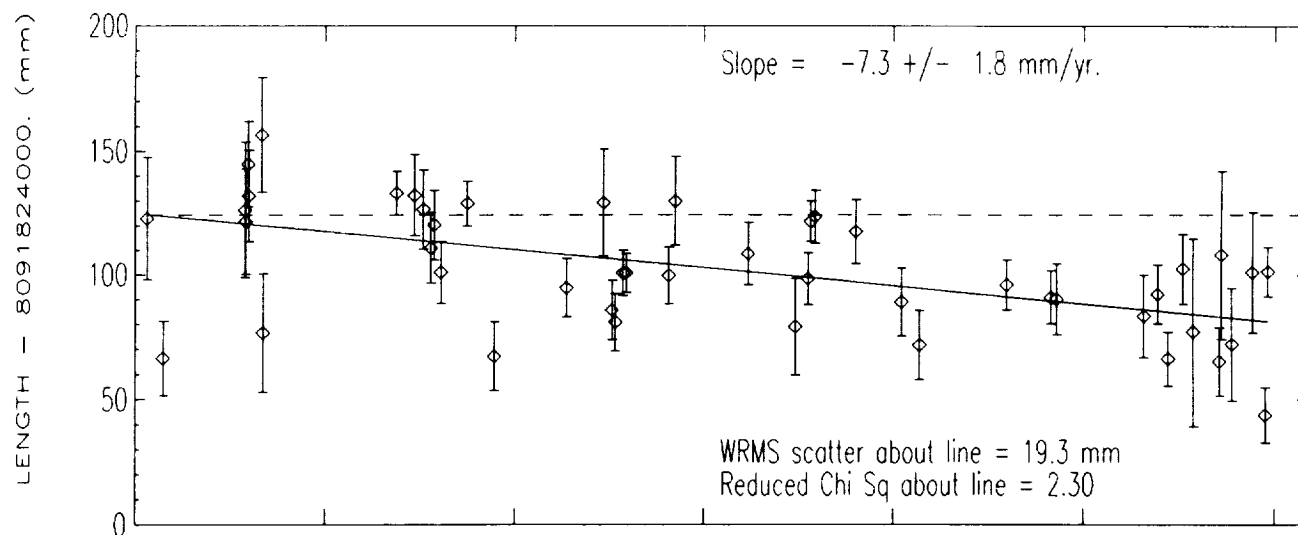
16 Observations



KASHIMA TO MOJAVE12

(Length = 8091 km)

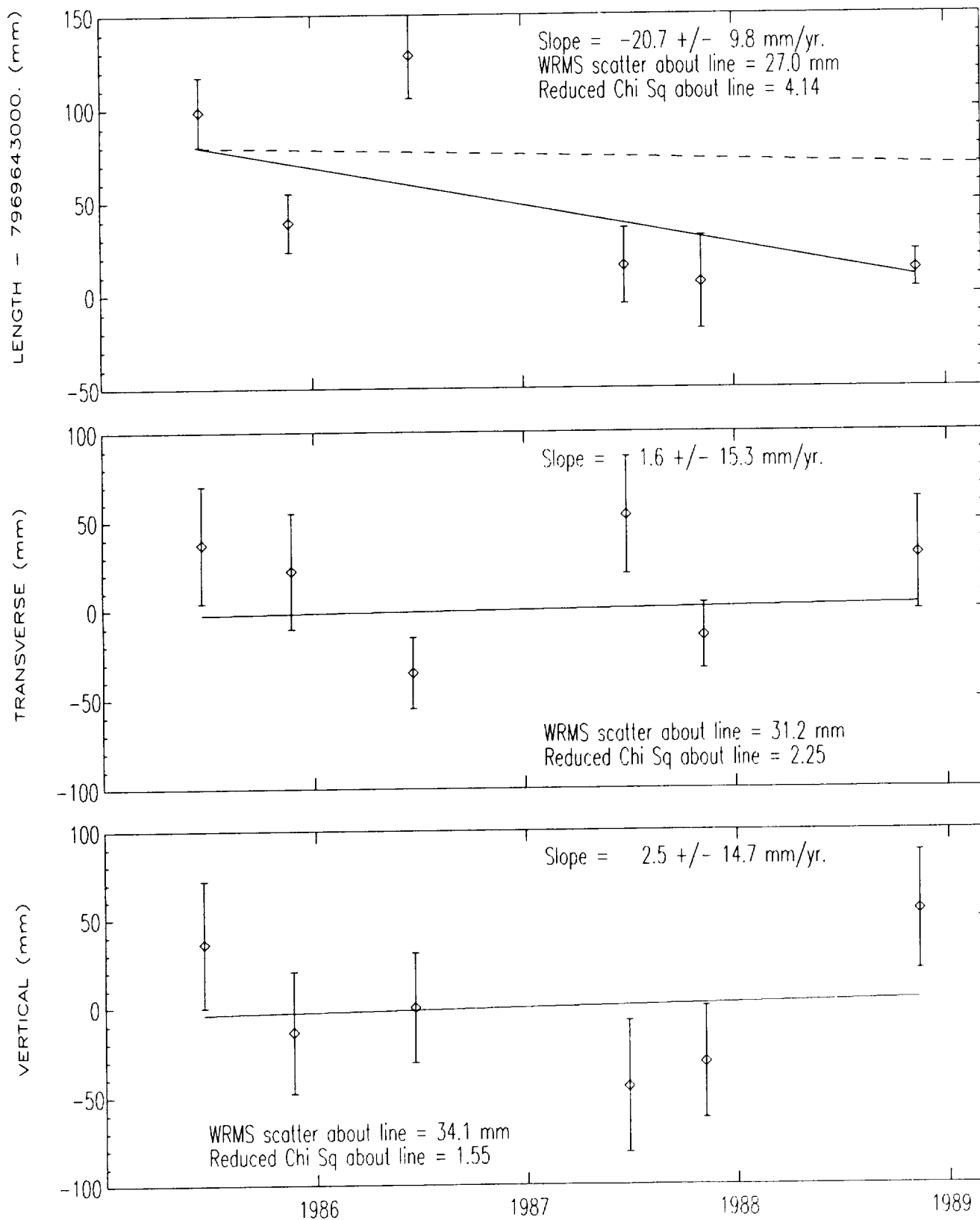
46 Observations



KASHIMA TO ONSALA60

(Length = 7969 km)

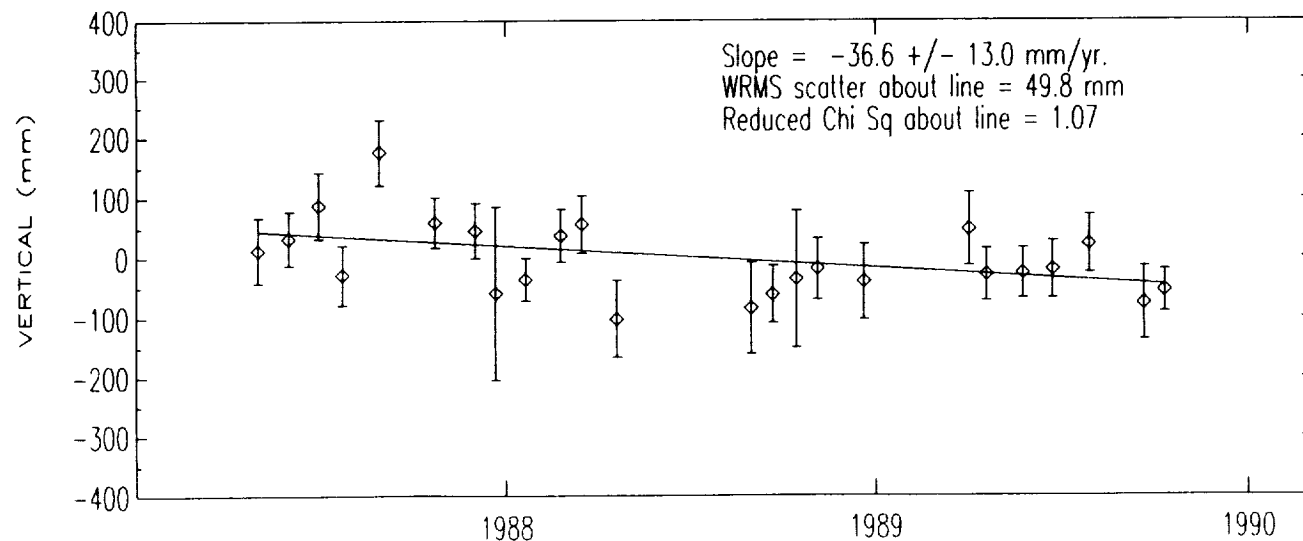
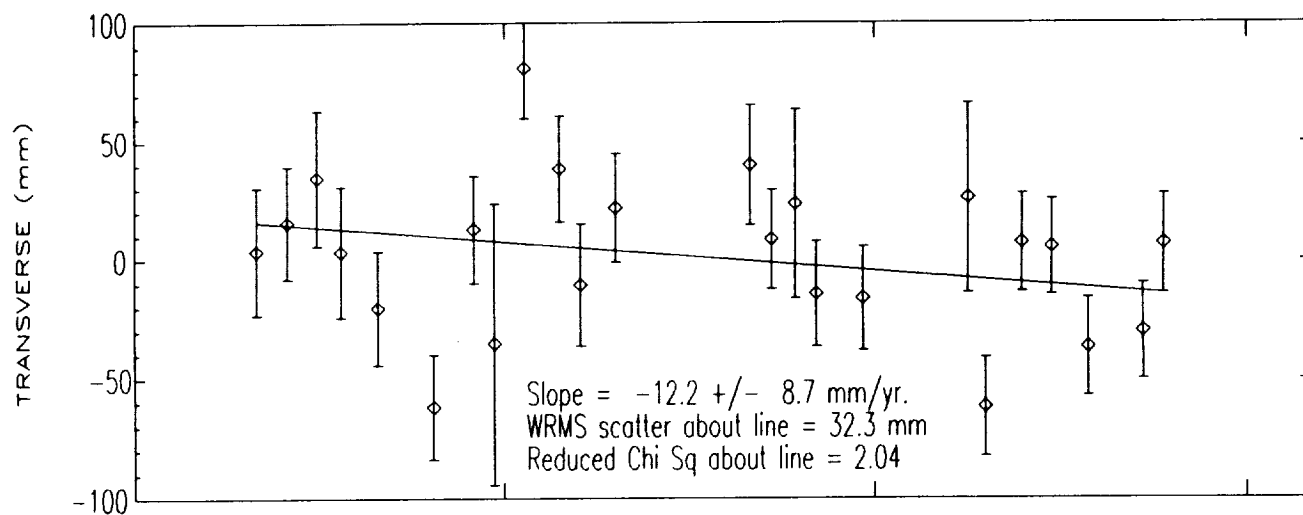
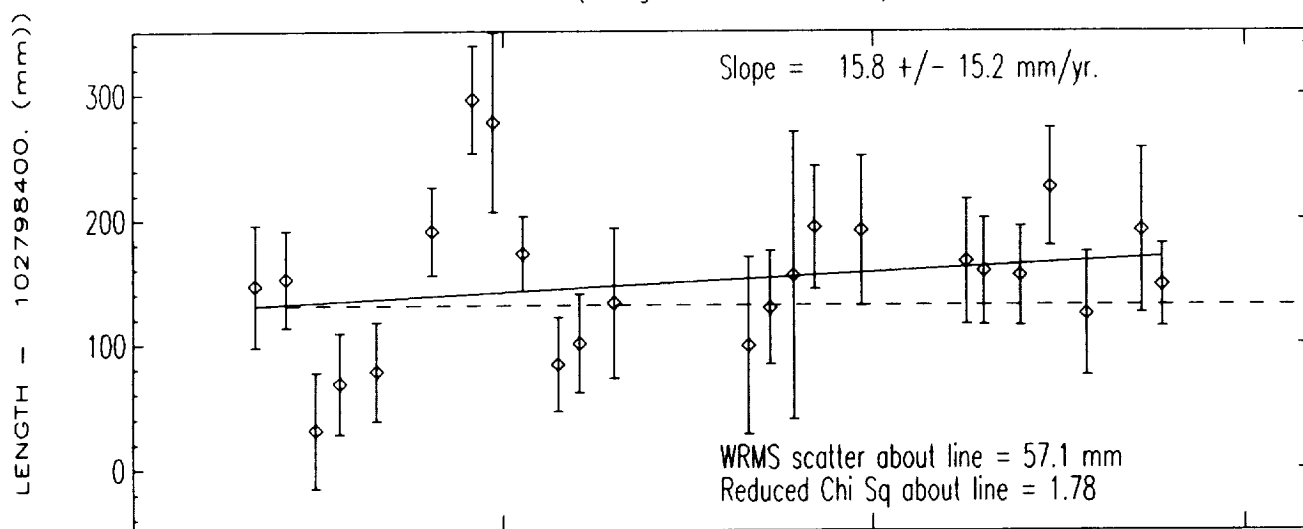
6 Observations



KASHIMA TO RICHMOND

(Length = 10279 km)

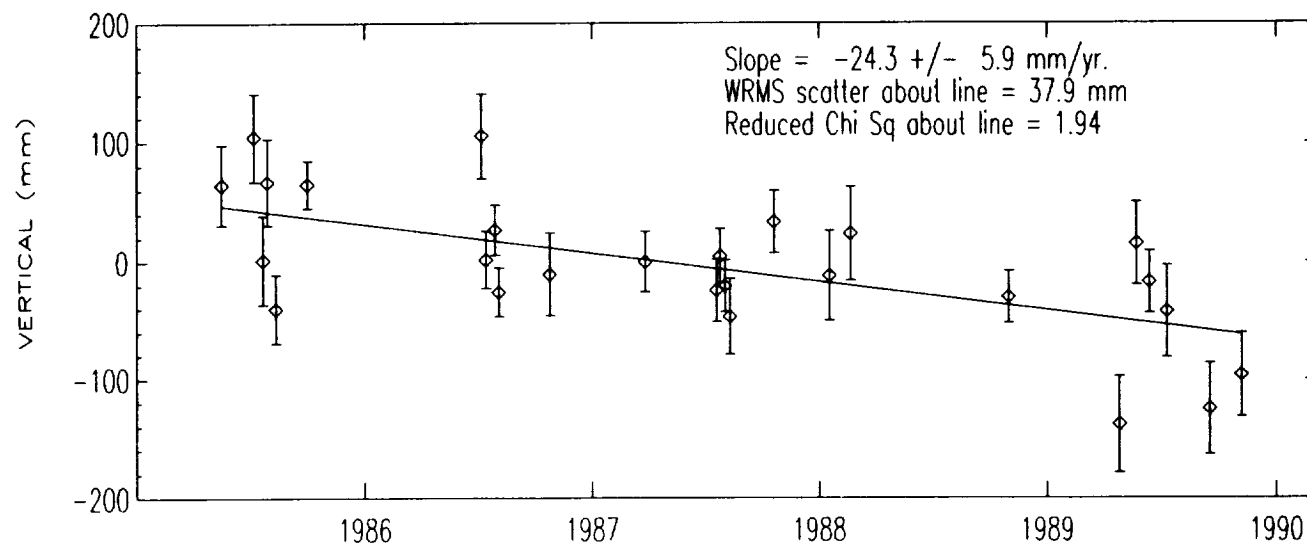
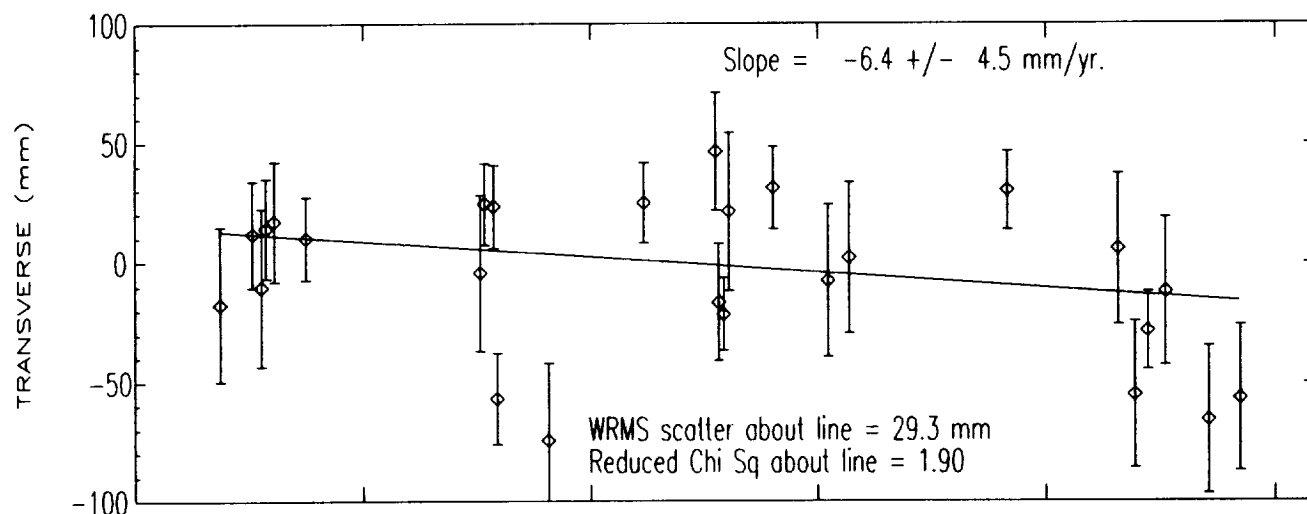
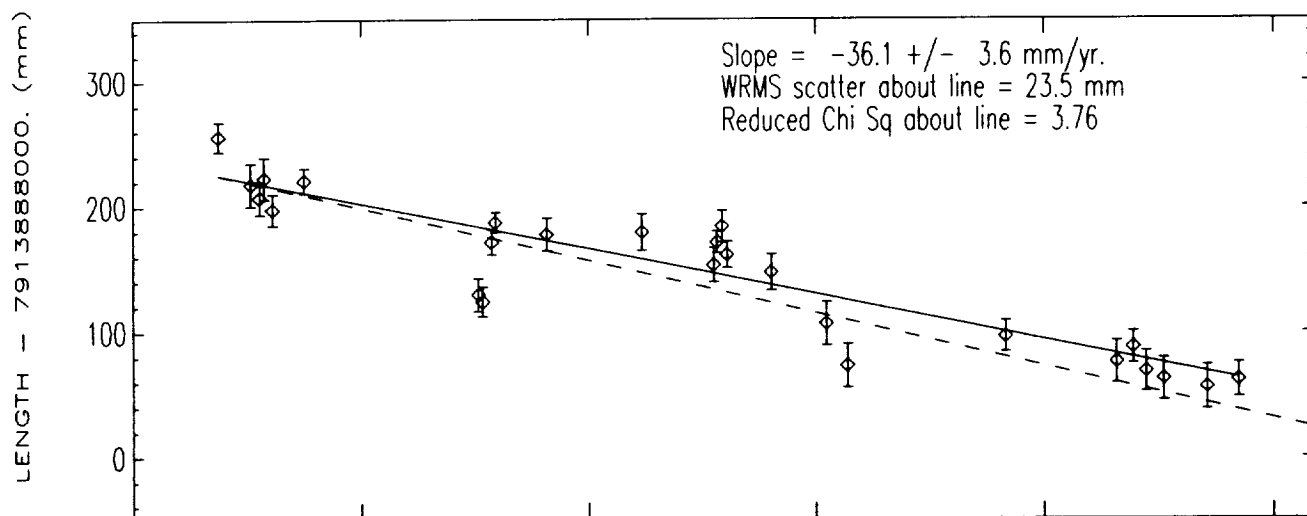
24 Observations



KASHIMA TO VNDNBERG

(Length = 7913 km)

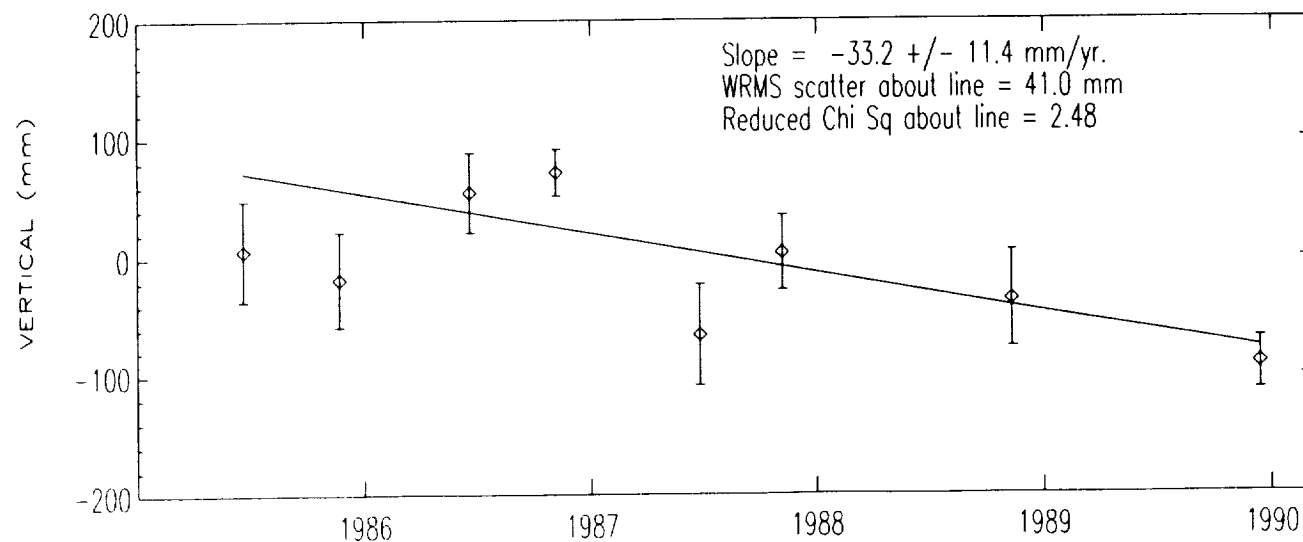
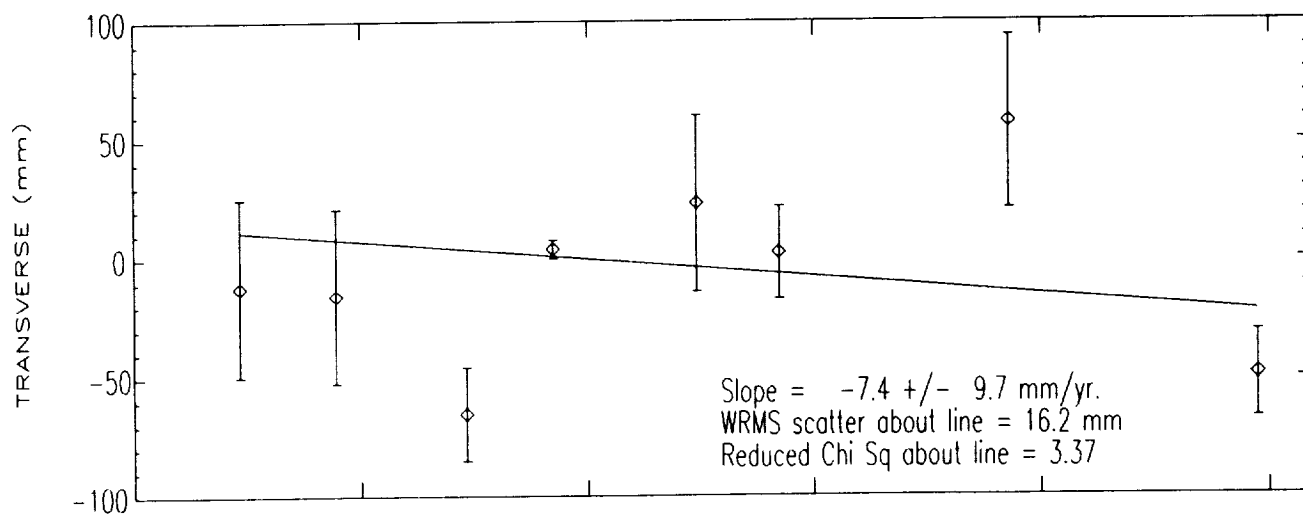
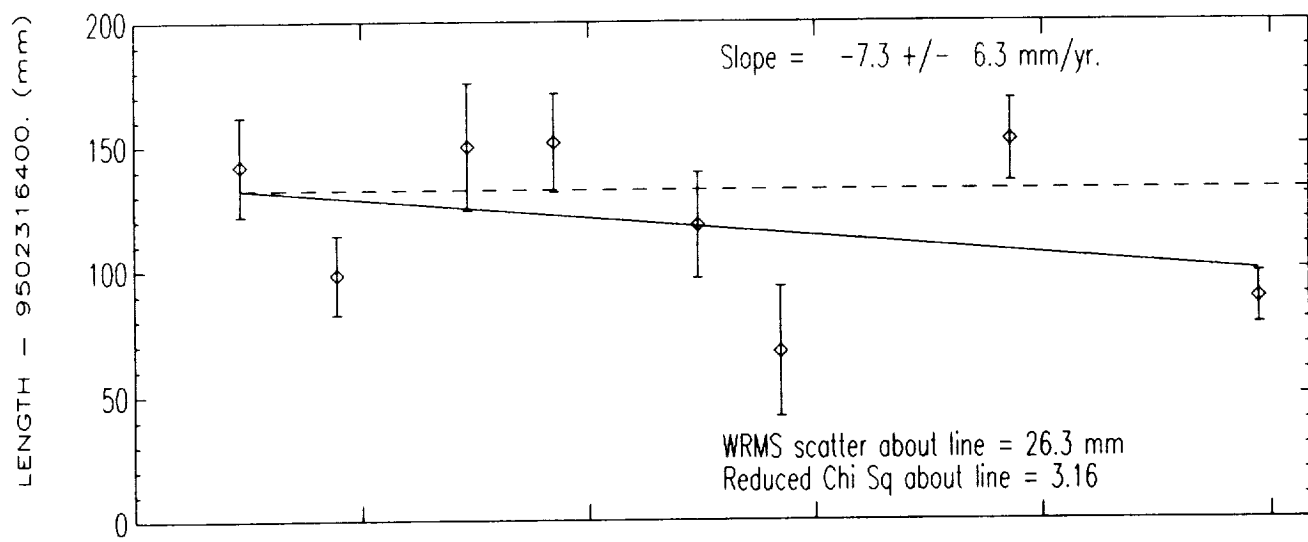
26 Observations



KASHIMA TO WESTFORD

(Length = 9502 km)

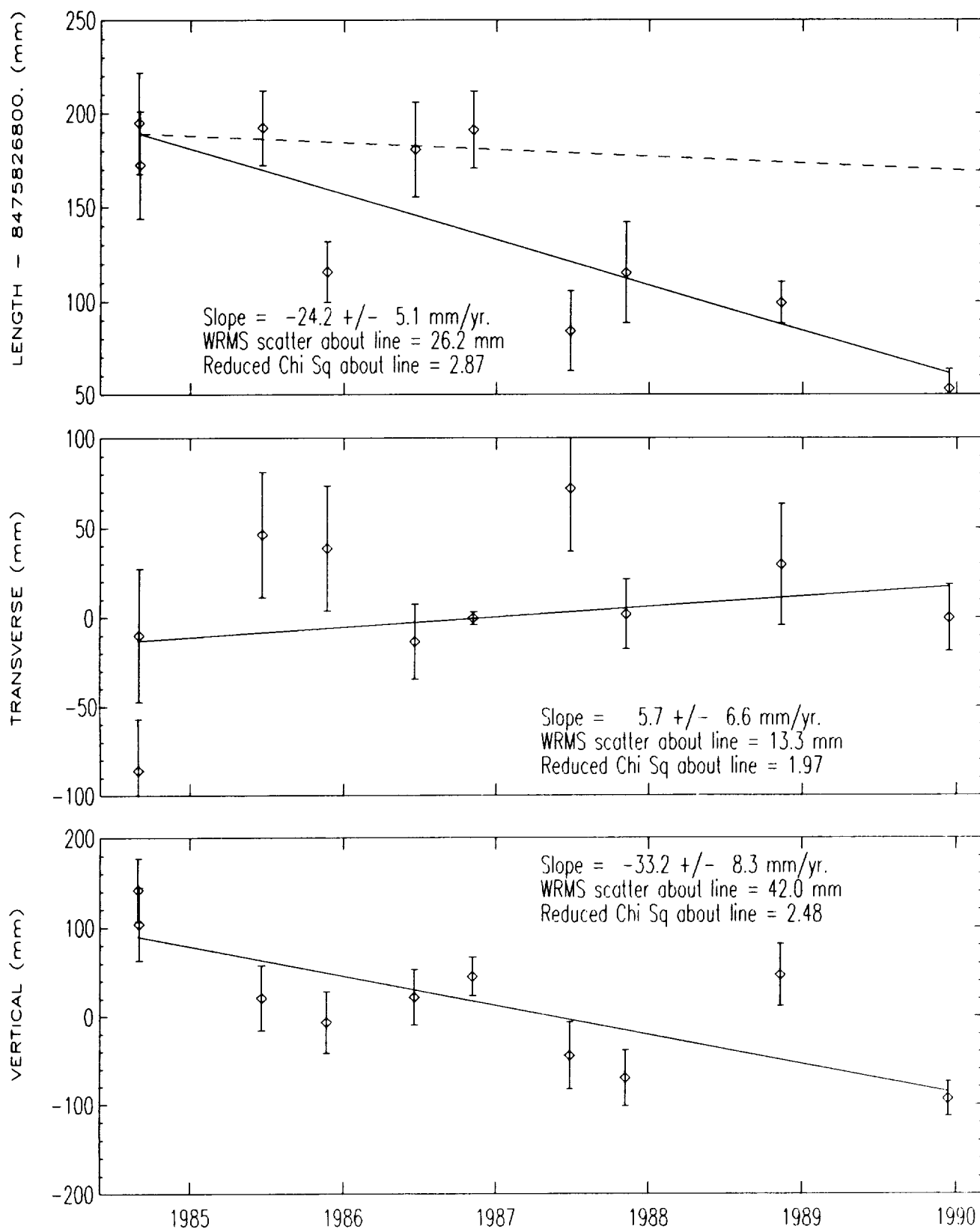
8 Observations



KASHIMA TO WETTZELL

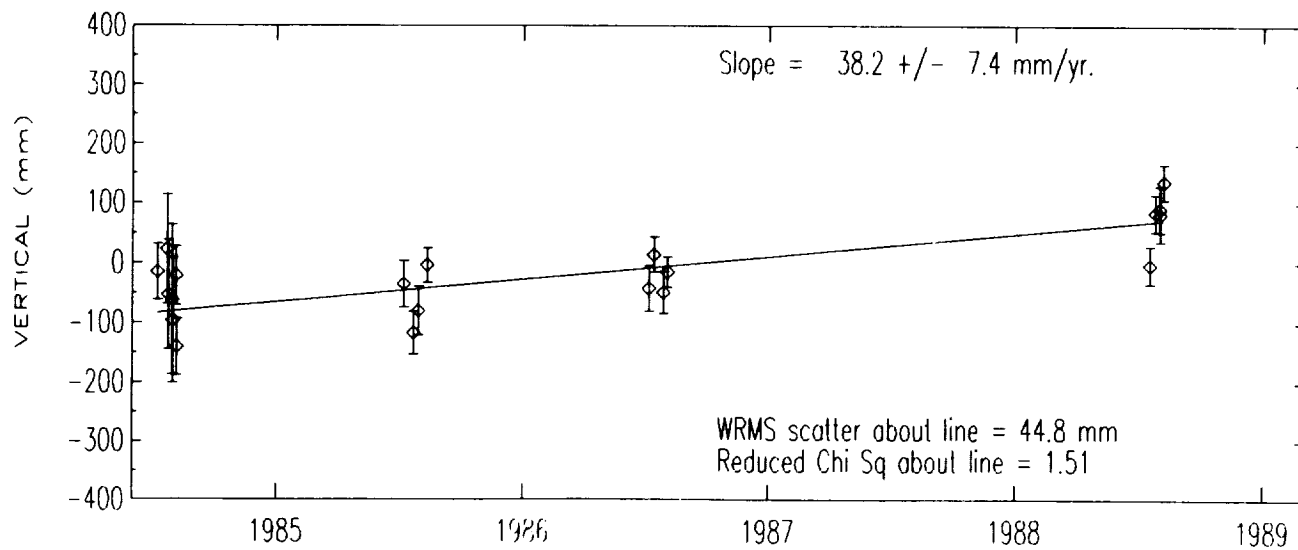
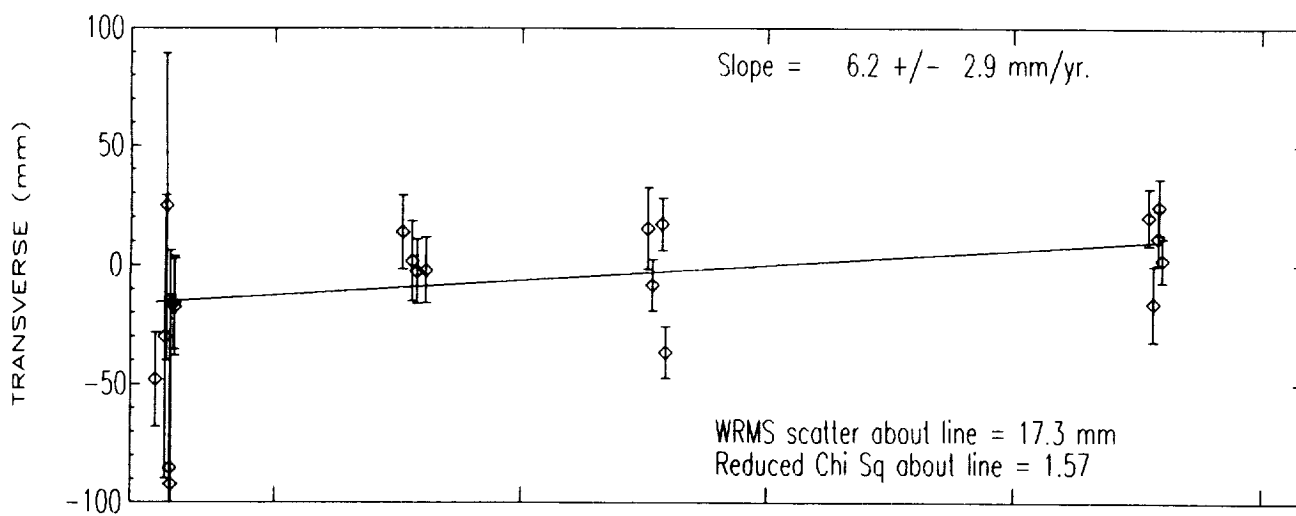
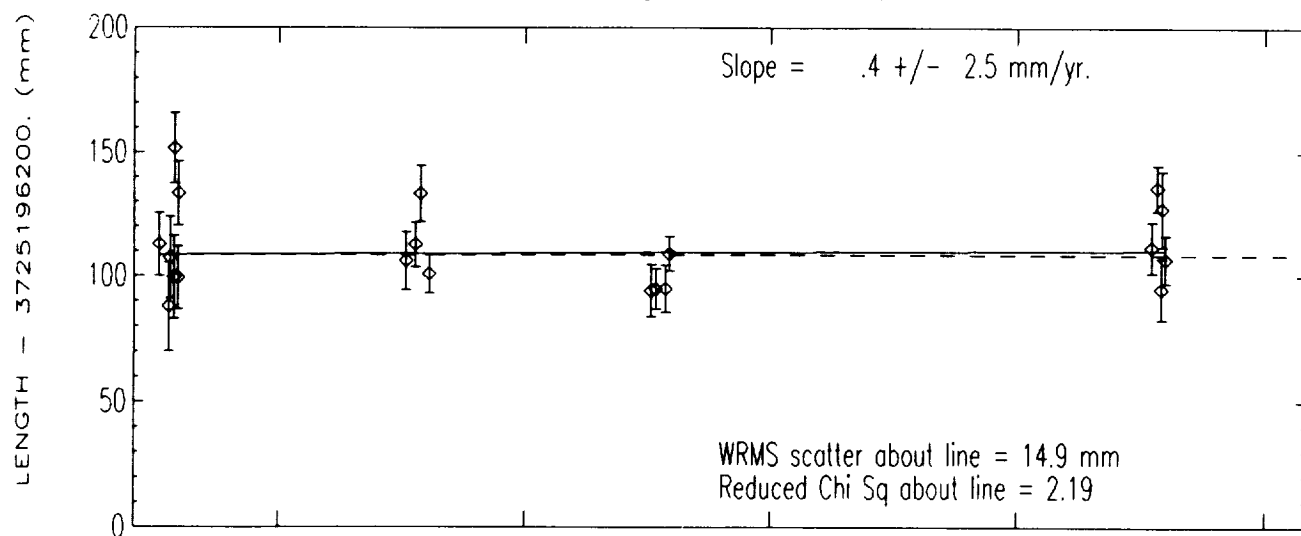
(Length = 8475 km)

10 Observations



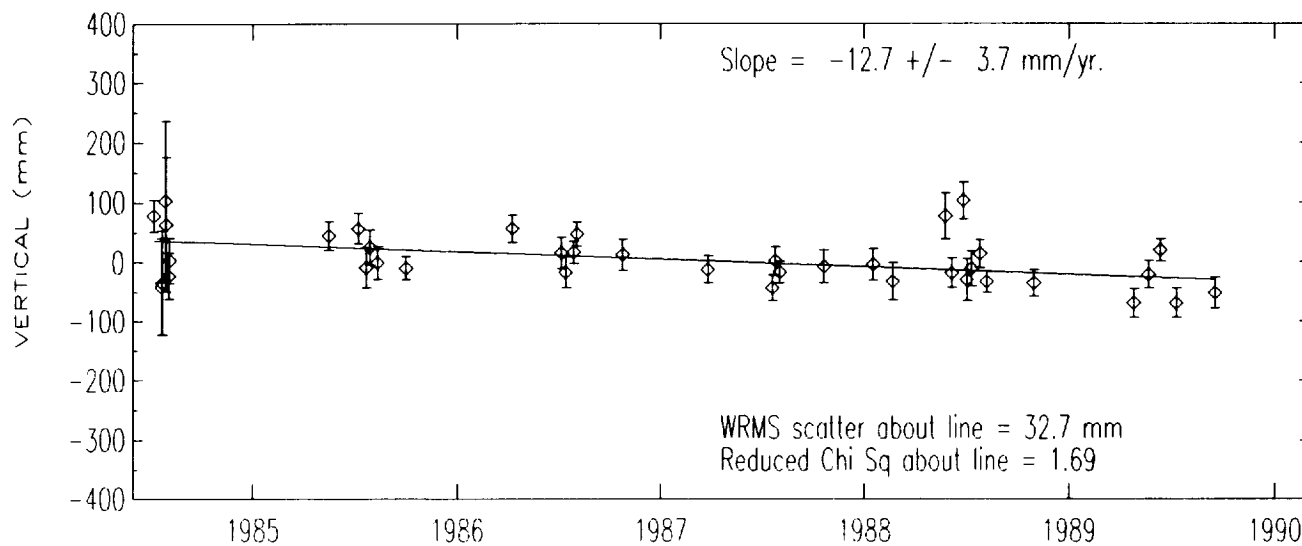
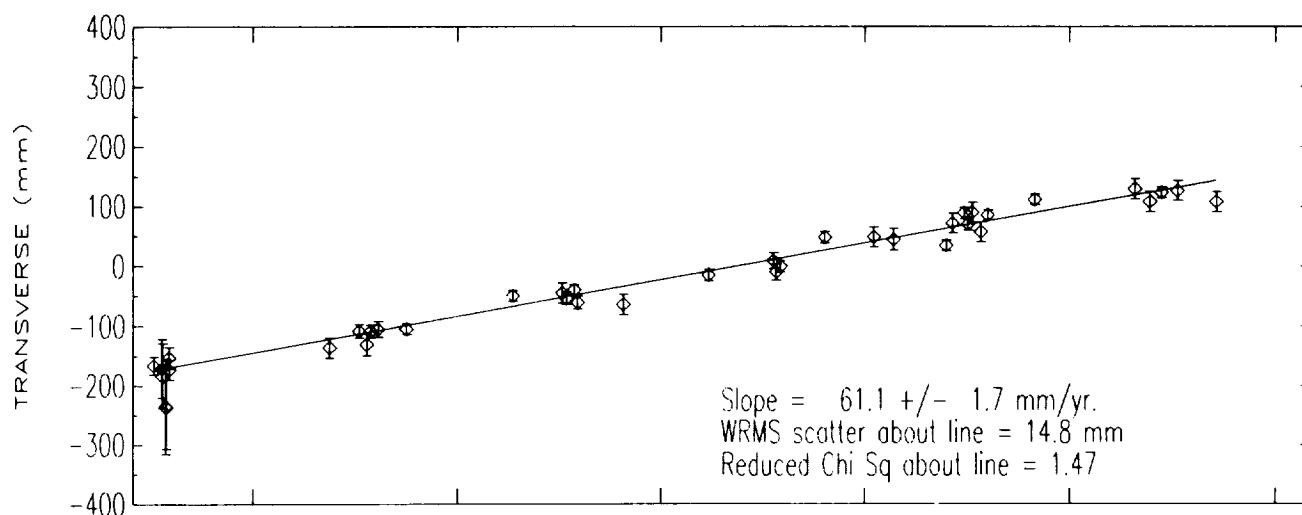
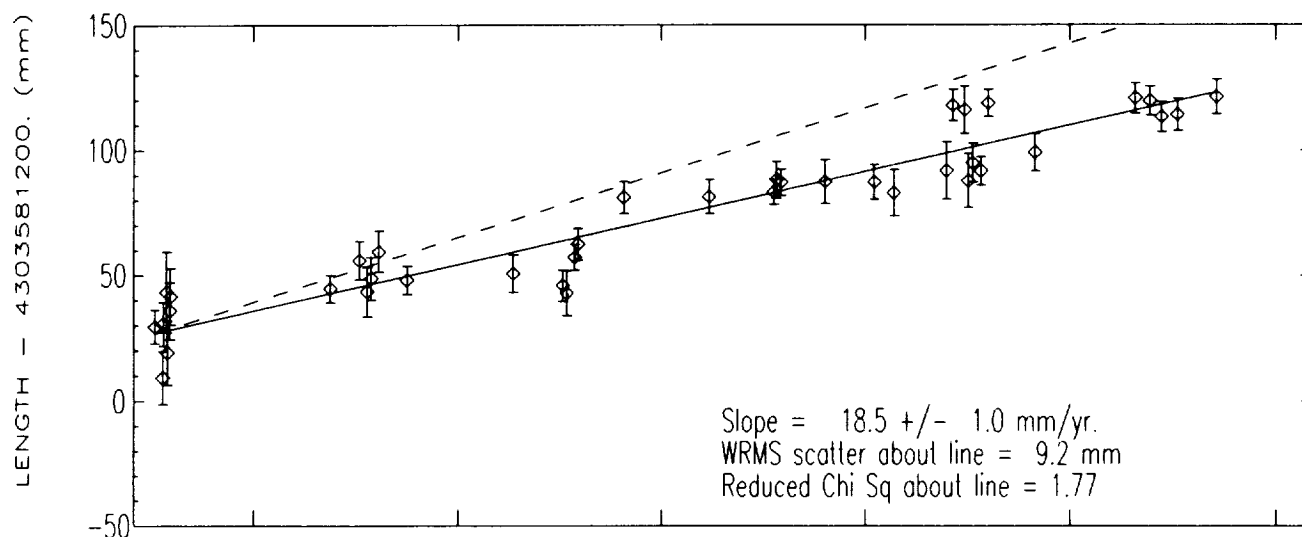
KAUAI TO KWAJAL26 (Length = 3725 km)

20 Observations



KAUAI TO MOJAVE12 (Length = 4303 km)

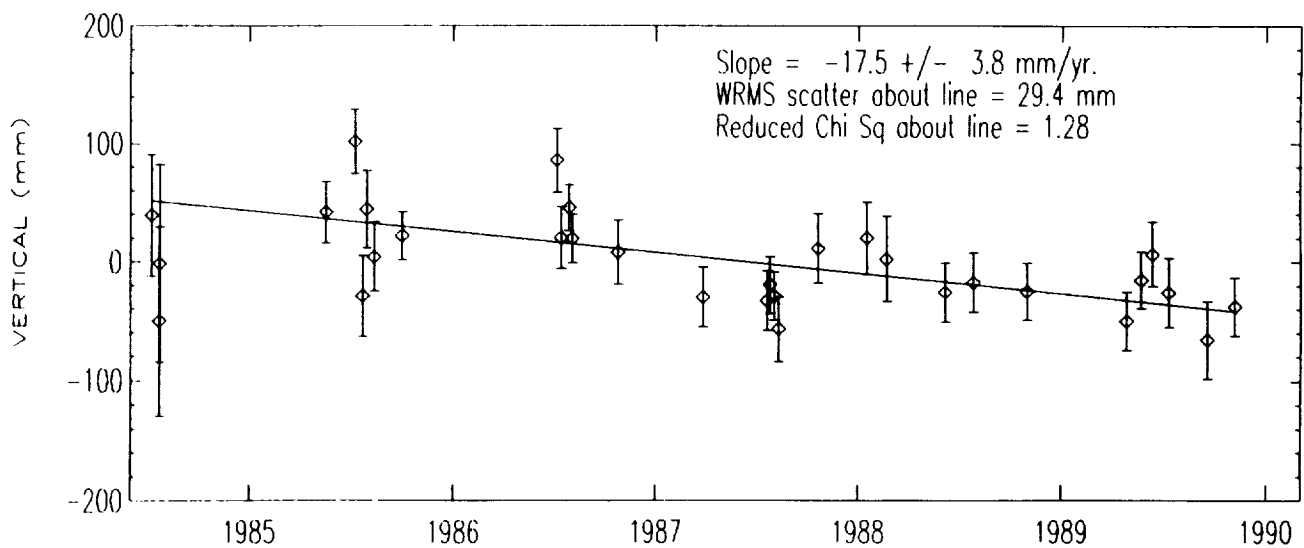
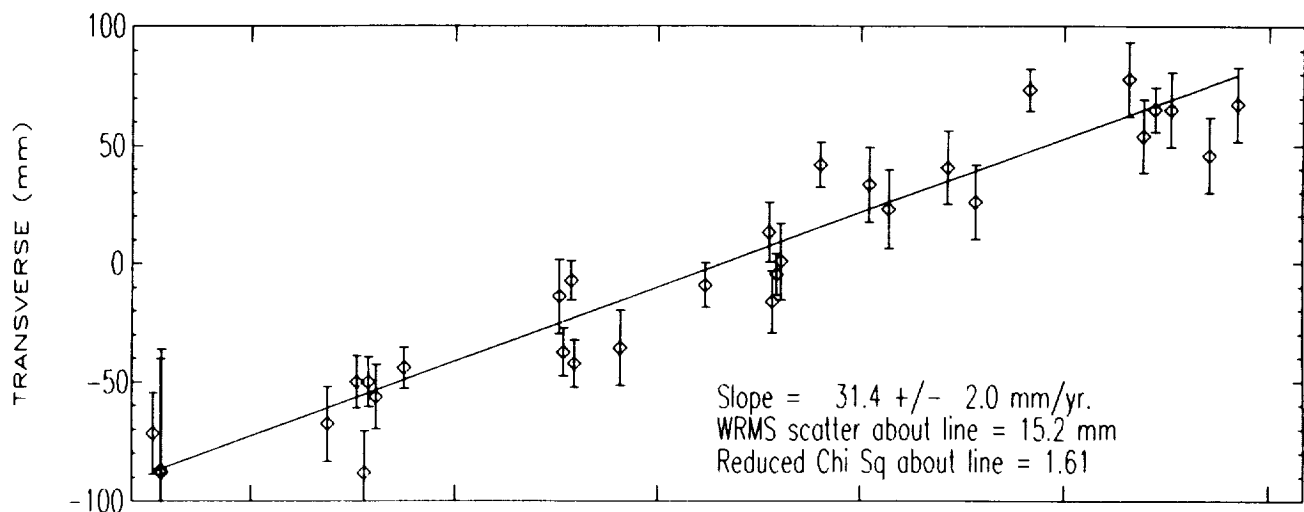
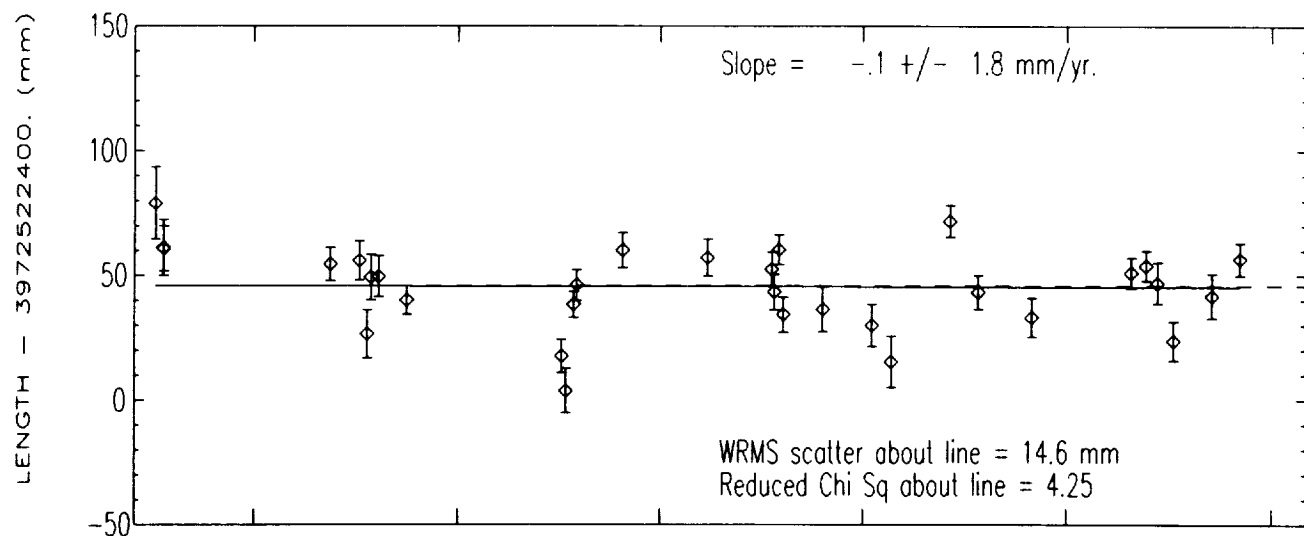
39 Observations



KAUAI TO VNDNBERG

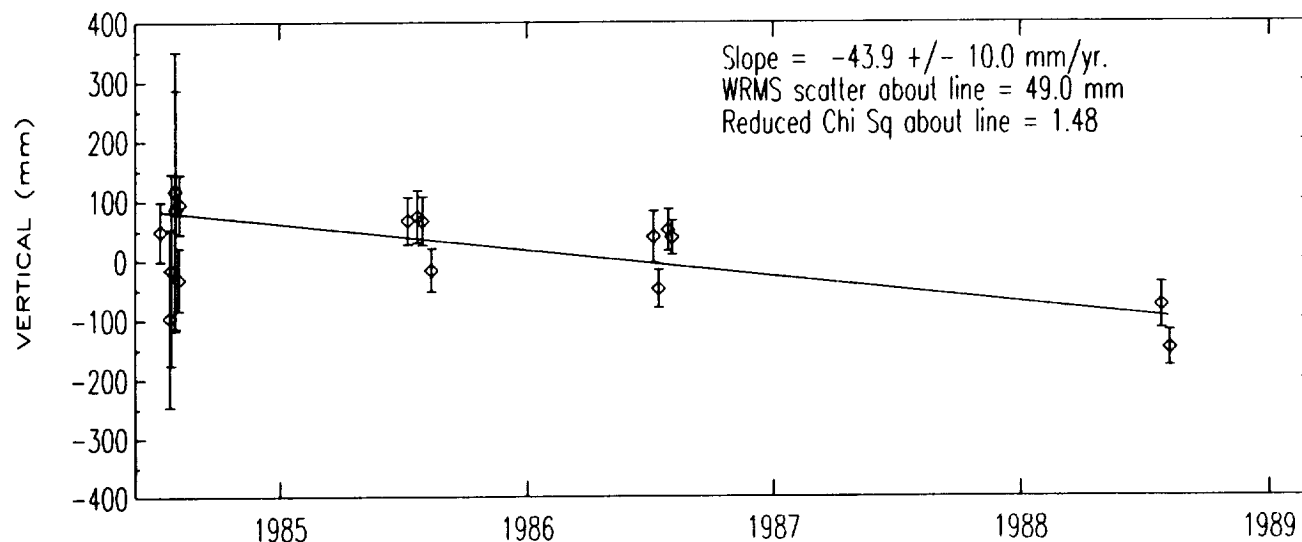
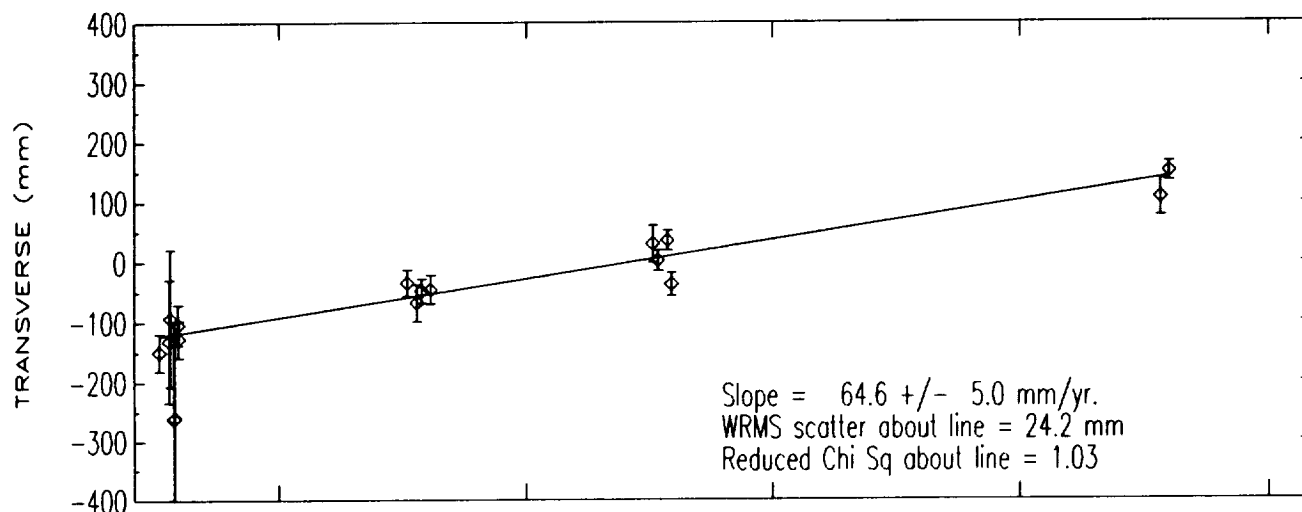
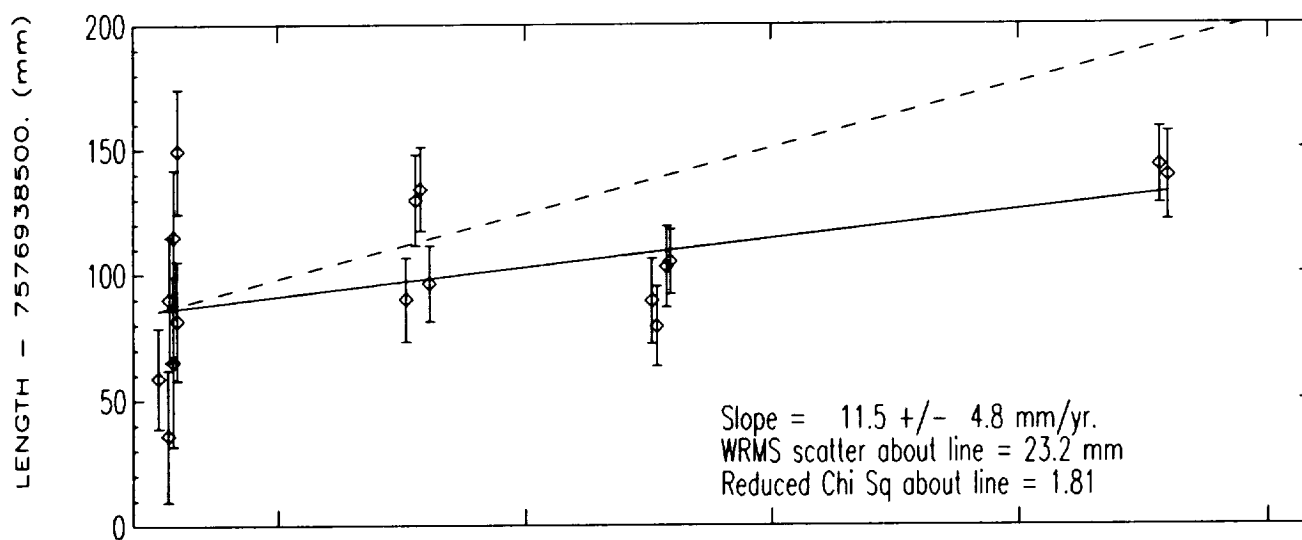
(Length = 3972 km)

31 Observations



KWAJAL26 TO MOJAVE12 (Length = 7576 km)

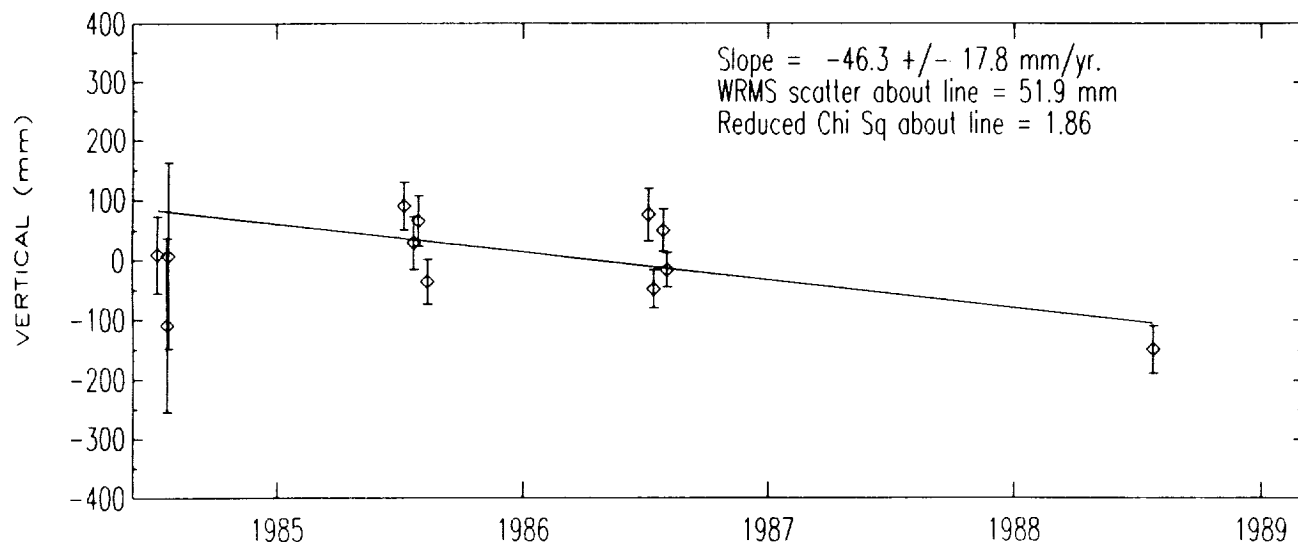
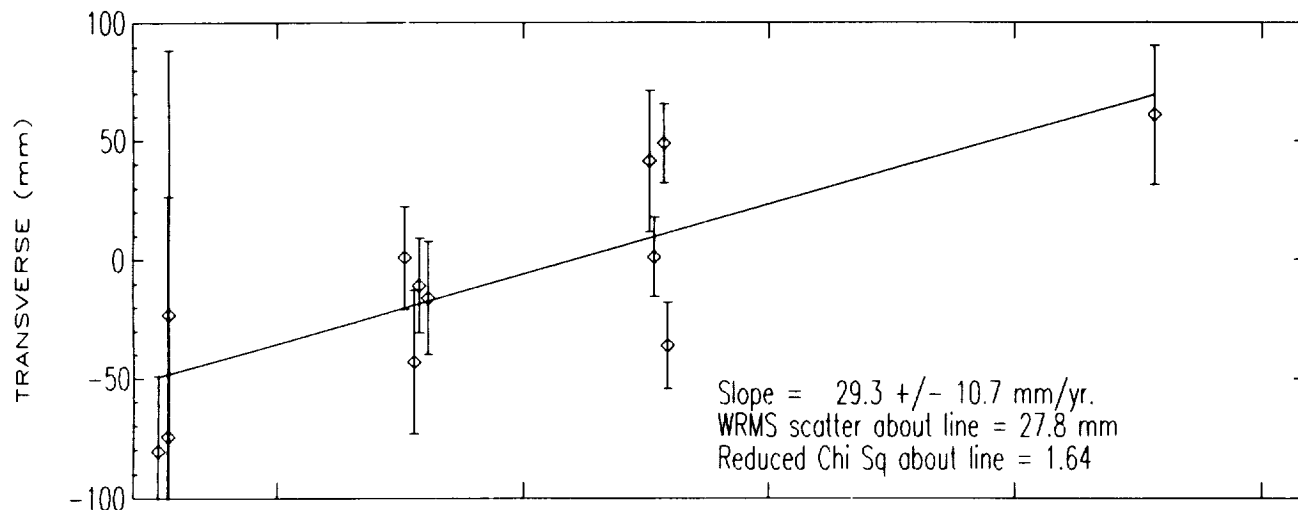
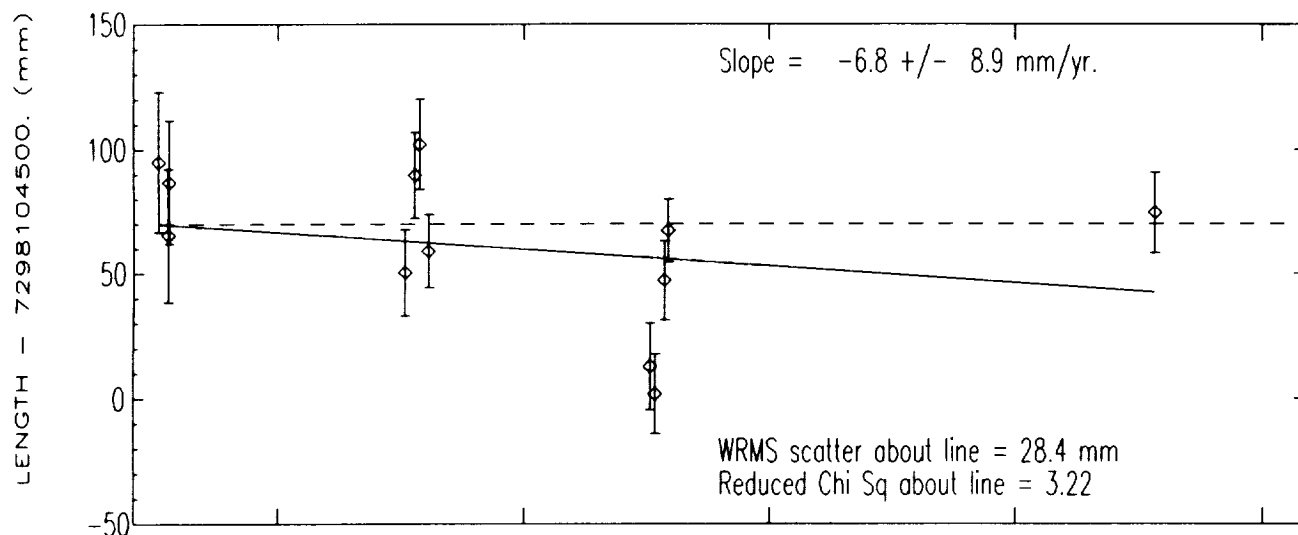
17 Observations



KWAJAL26 TO VNDNBERG

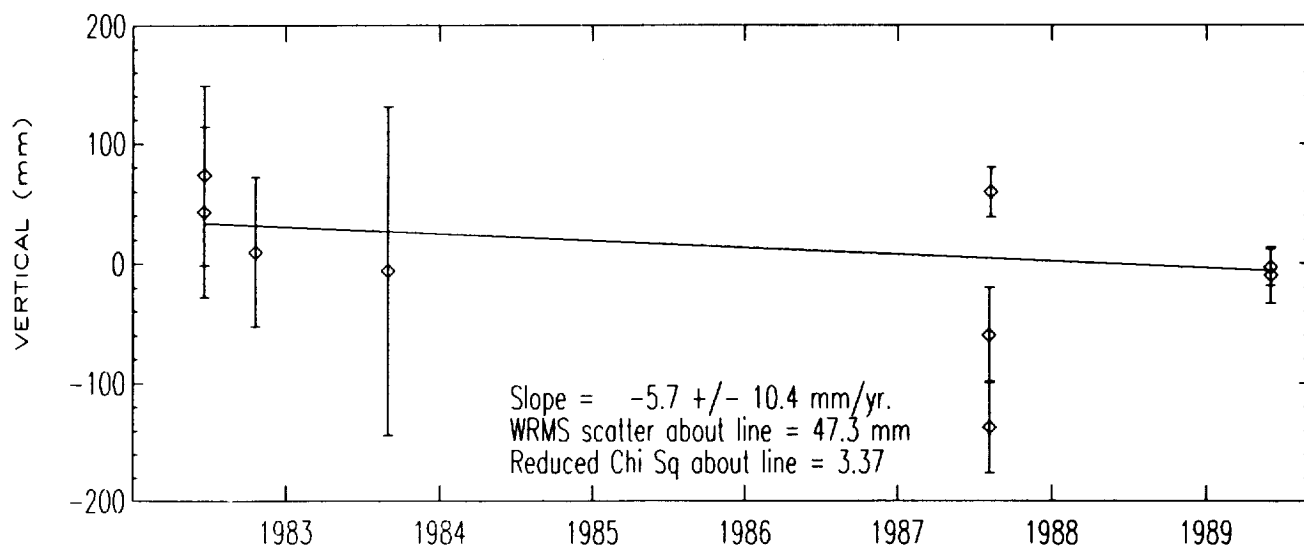
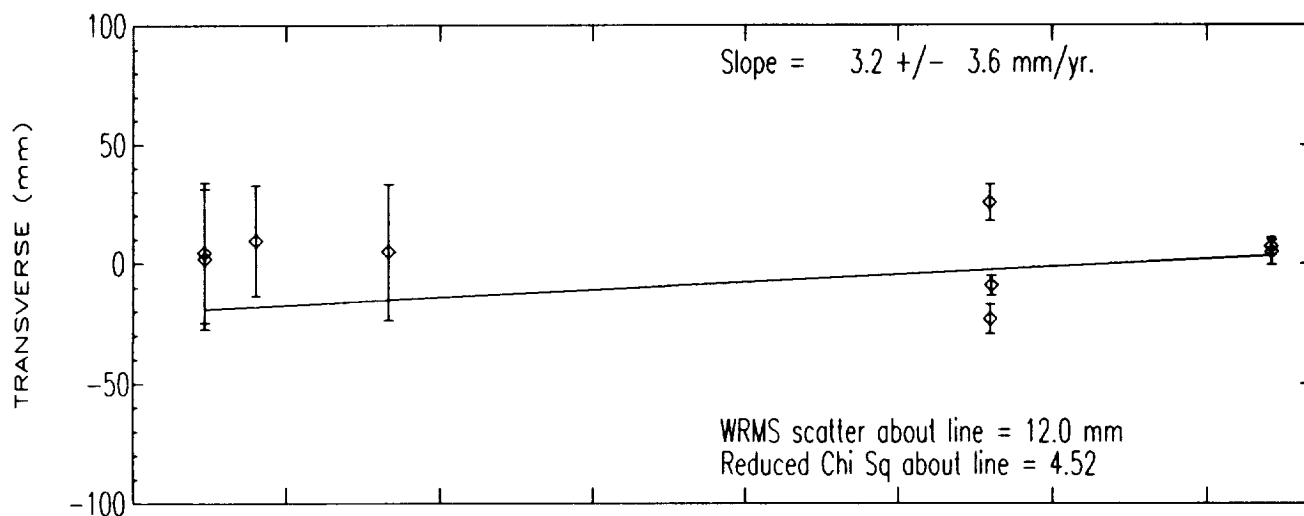
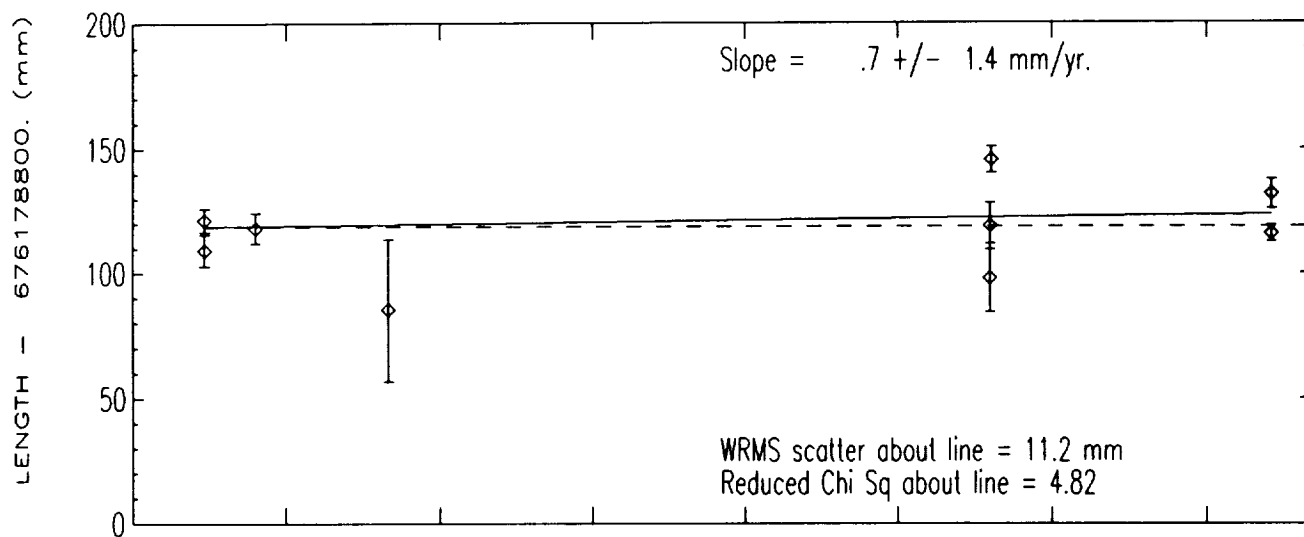
(Length = 7298 km)

12 Observations



MARPOINT TO WESTFORD (Length = 676 km)

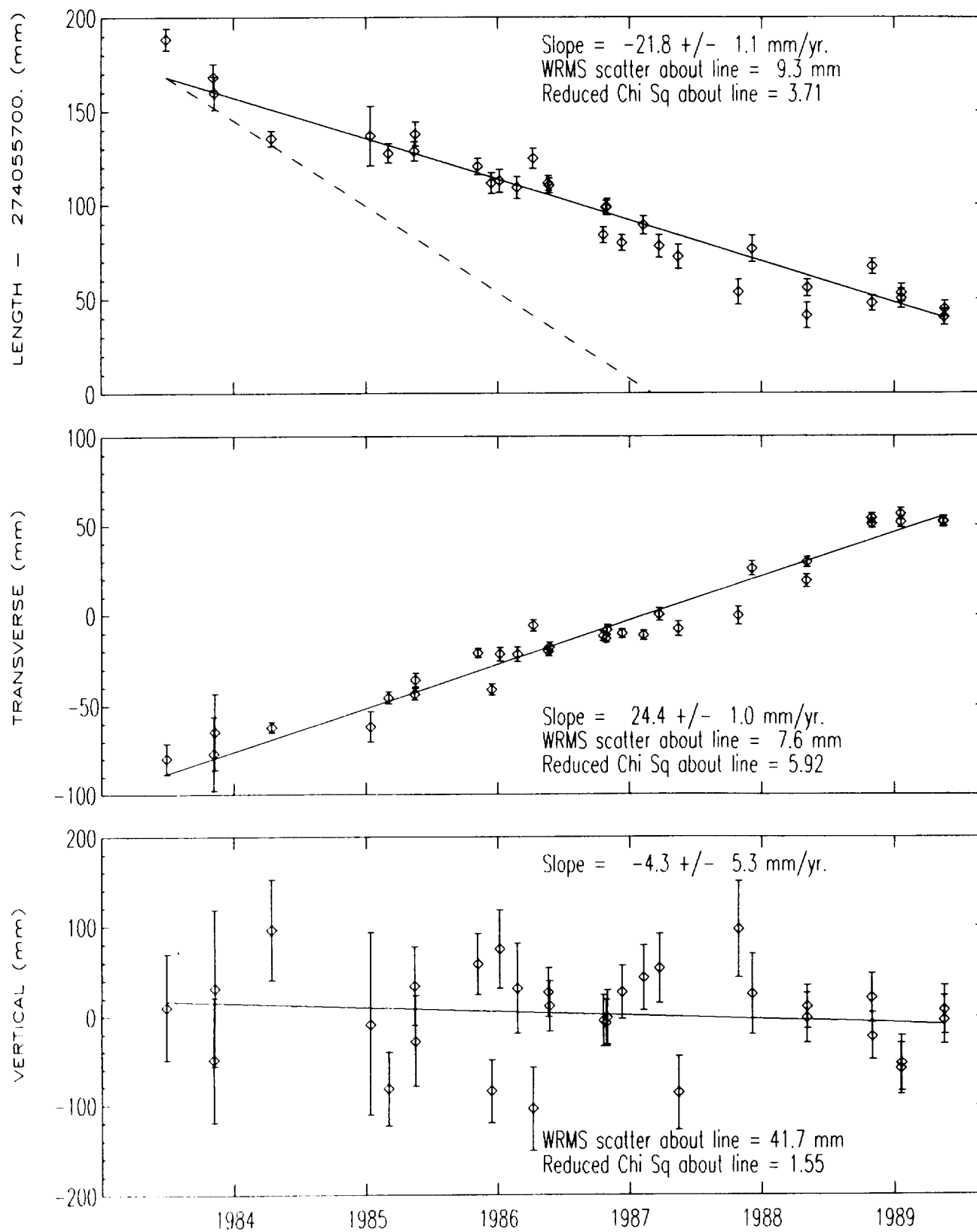
9 Observations



MOJAVE12 TO MON PEAK

(Length = 274 km)

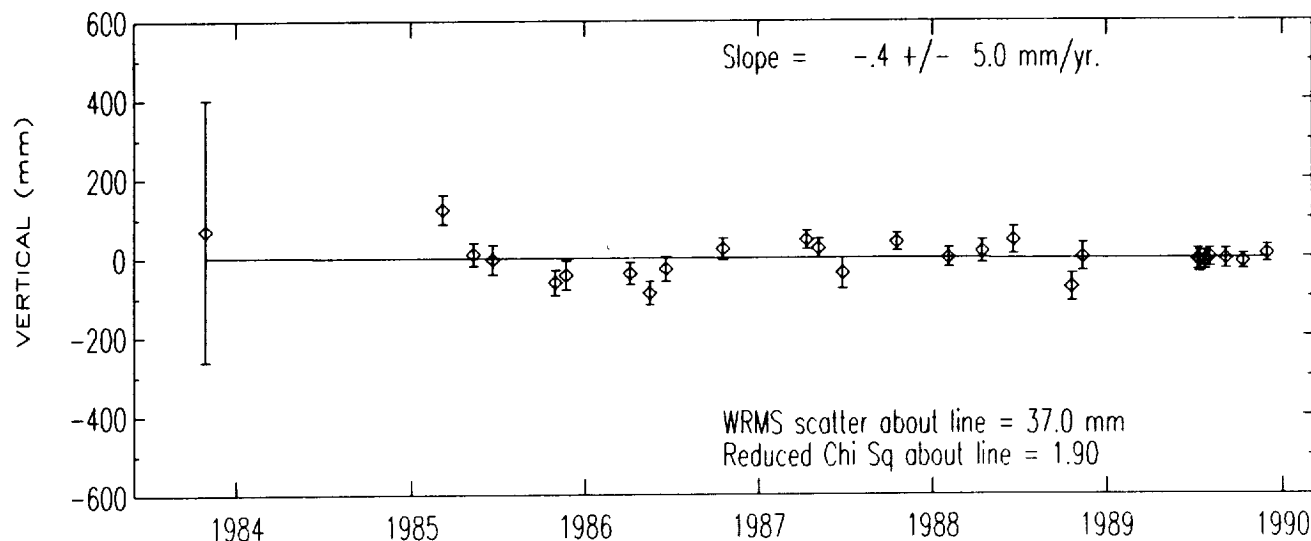
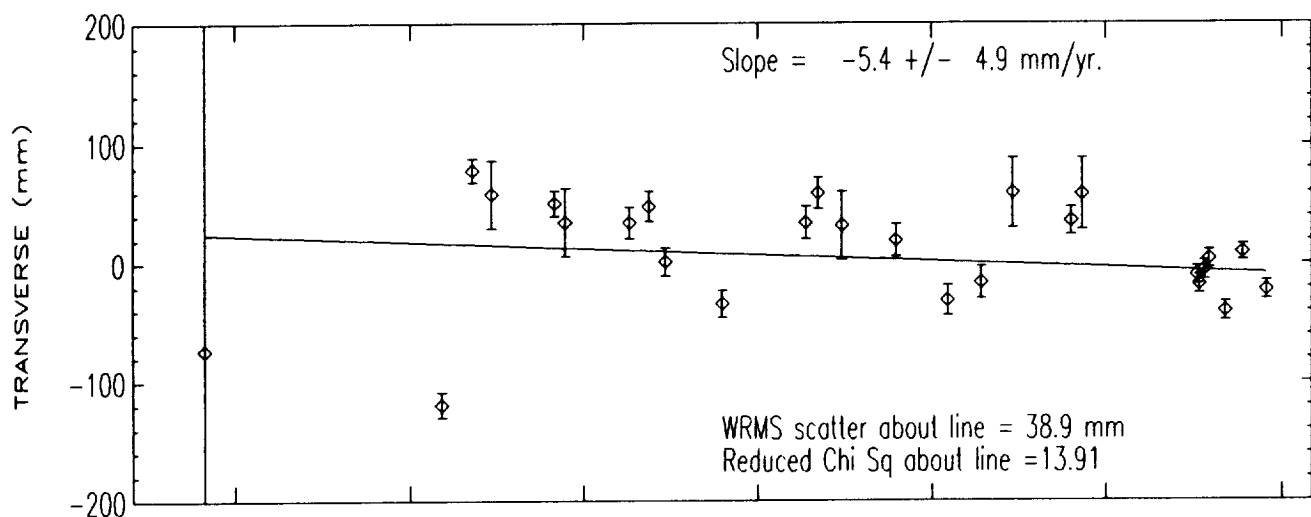
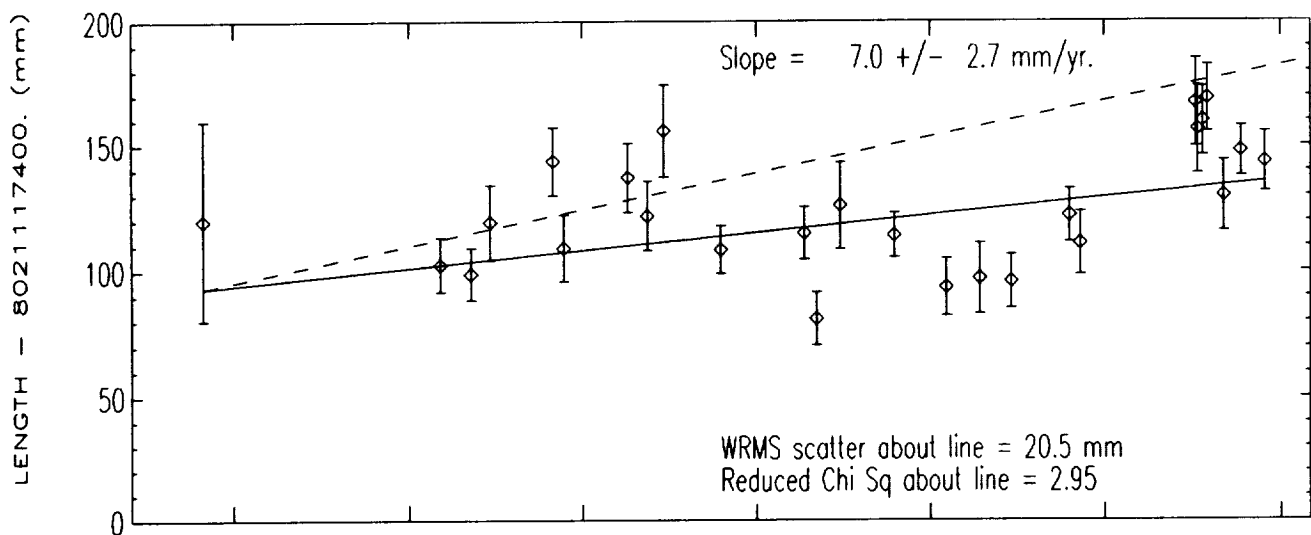
32 Observations



MOJAVE12 TO ONSALA60

(Length = 8021 km)

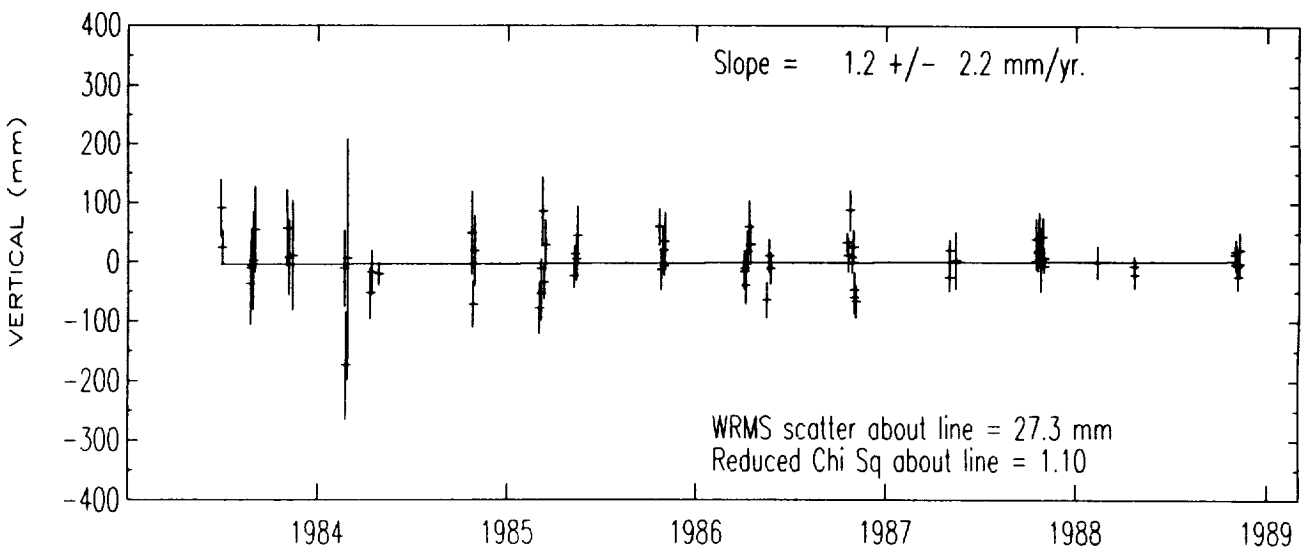
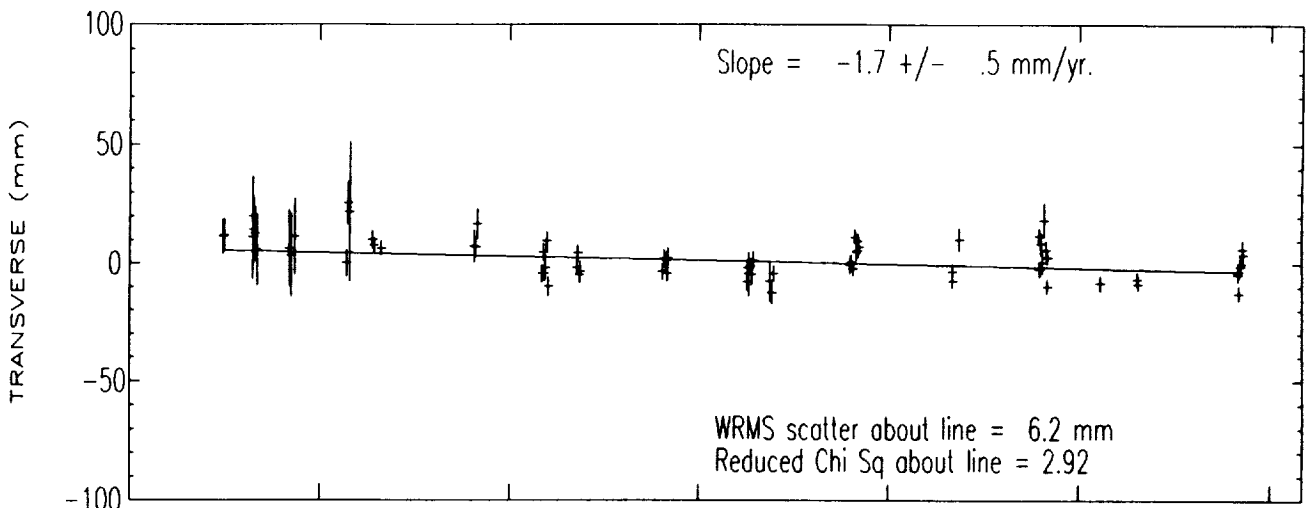
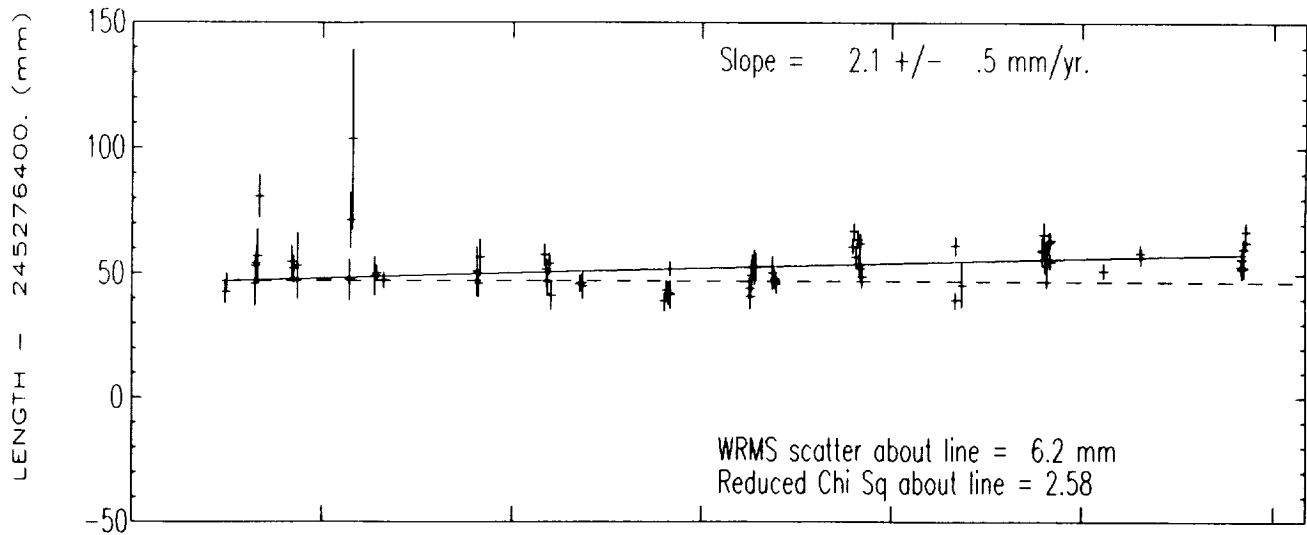
26 Observations



MOJAVE12 TO OVRO 130

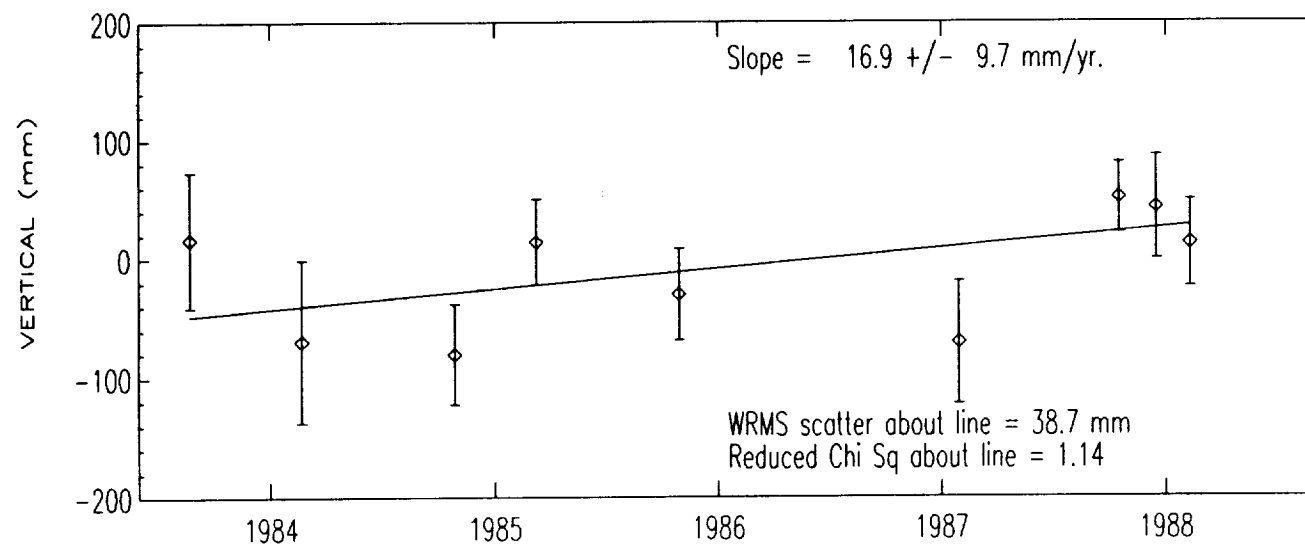
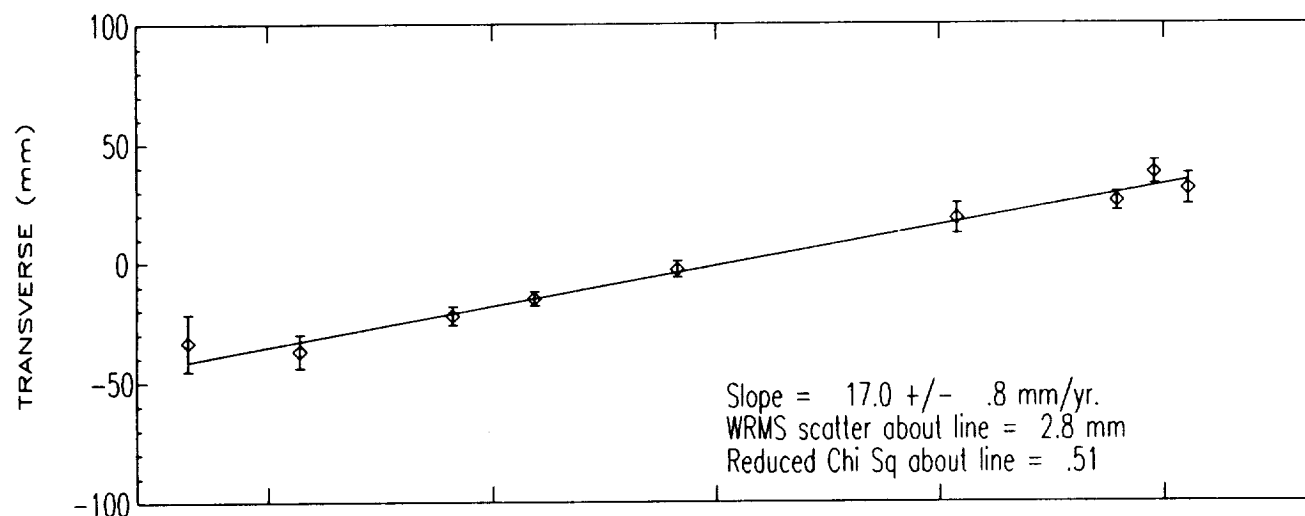
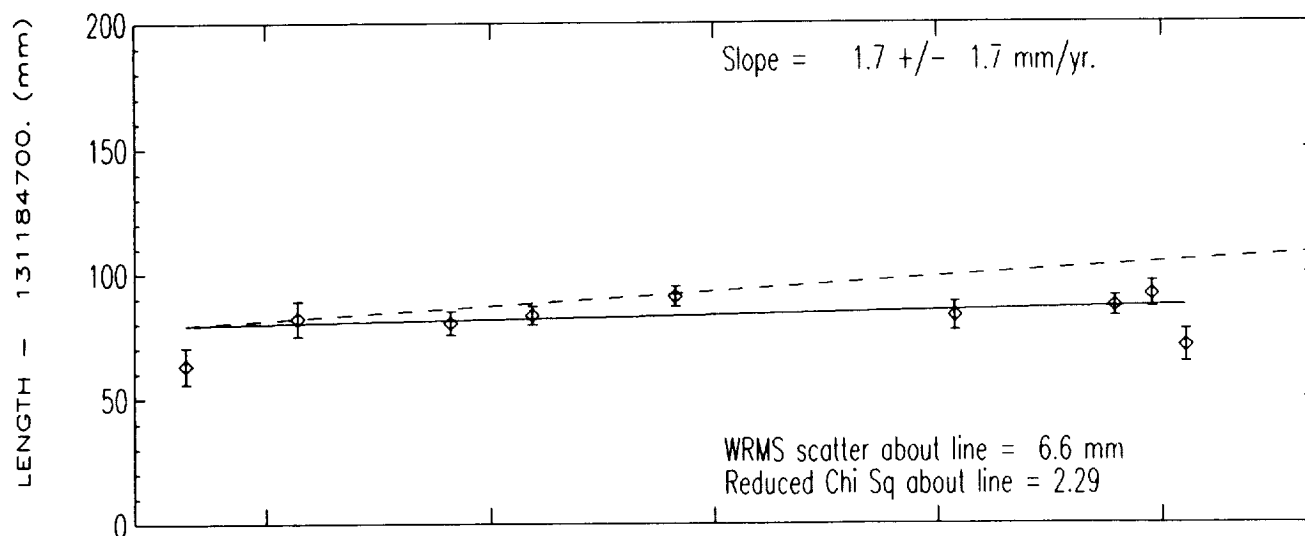
(Length = 245 km)

72 Observations



MOJAVE12 TO PBLOSSOM (Length = 131 km)

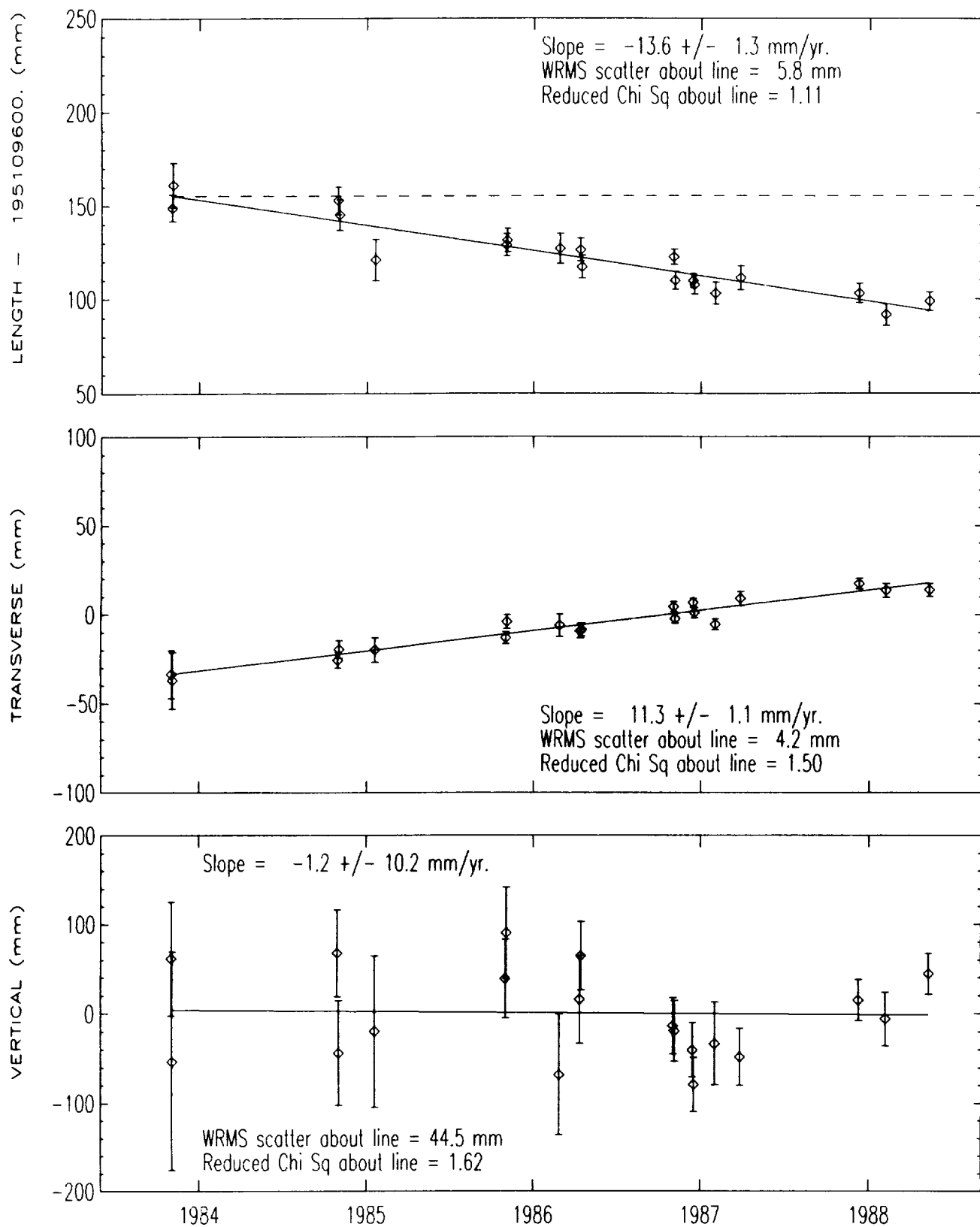
9 Observations



MOJAVE12 TO PINFLATS

(Length = 195 km)

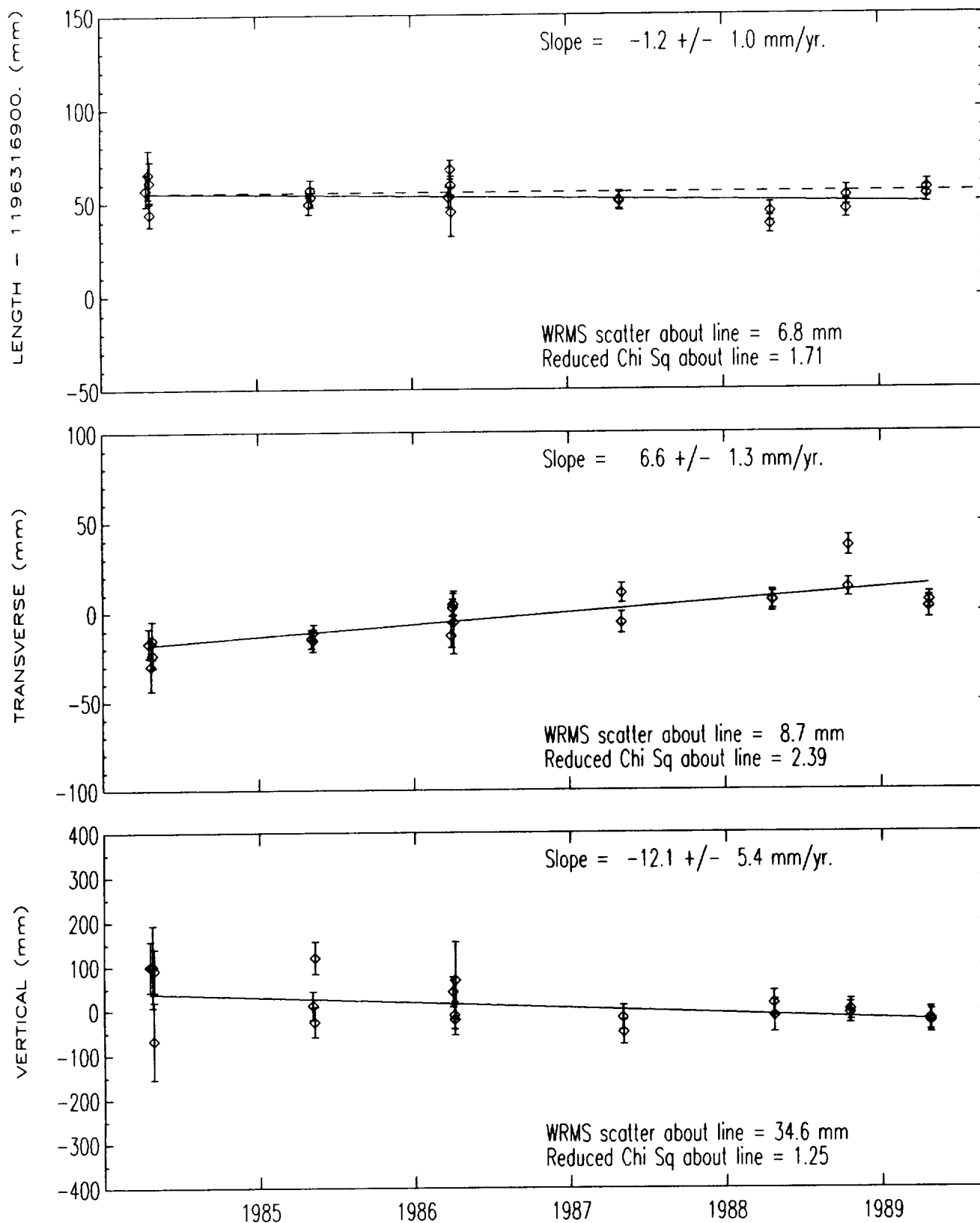
19 Observations



MOJAVE12 TO PLATTVIL

(Length = 1196 km)

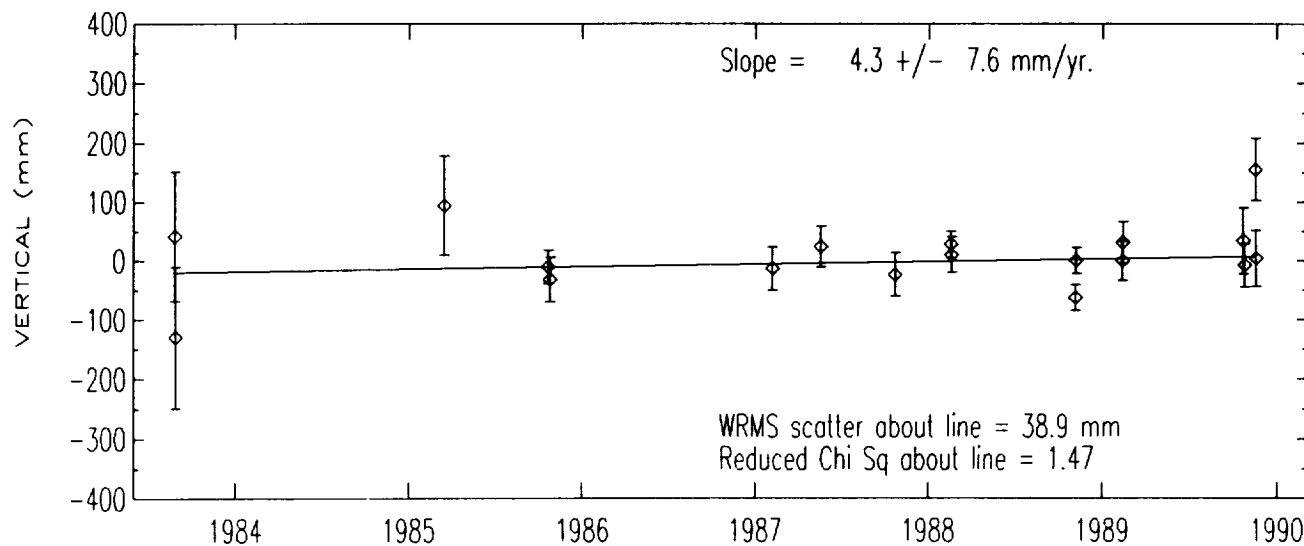
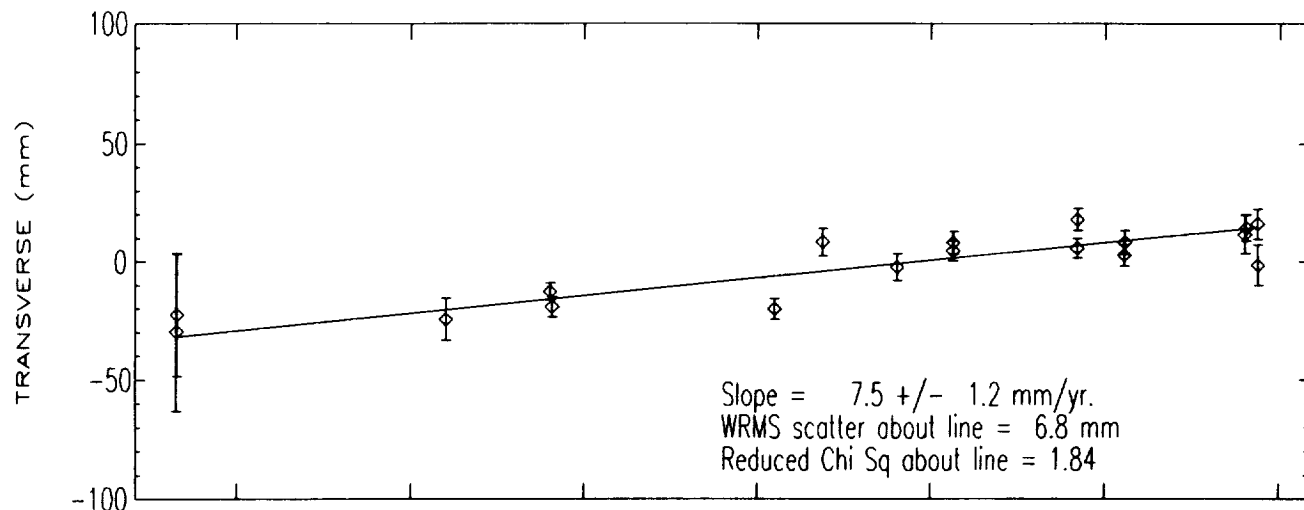
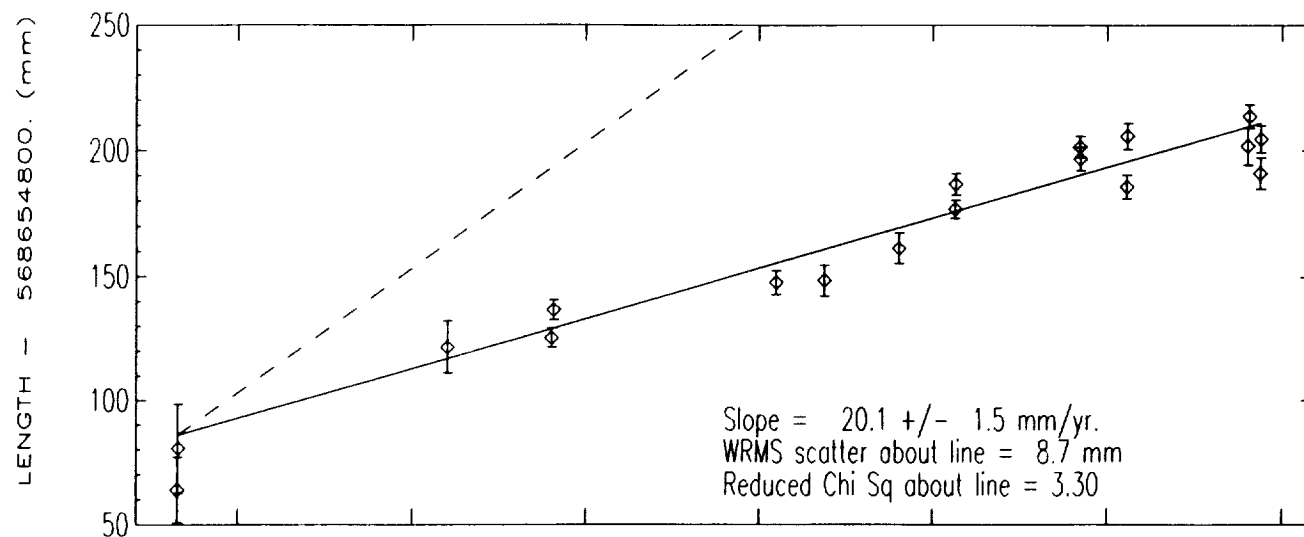
19 Observations



MOJAVE12 TO PRESIDIO

(Length = 568 km)

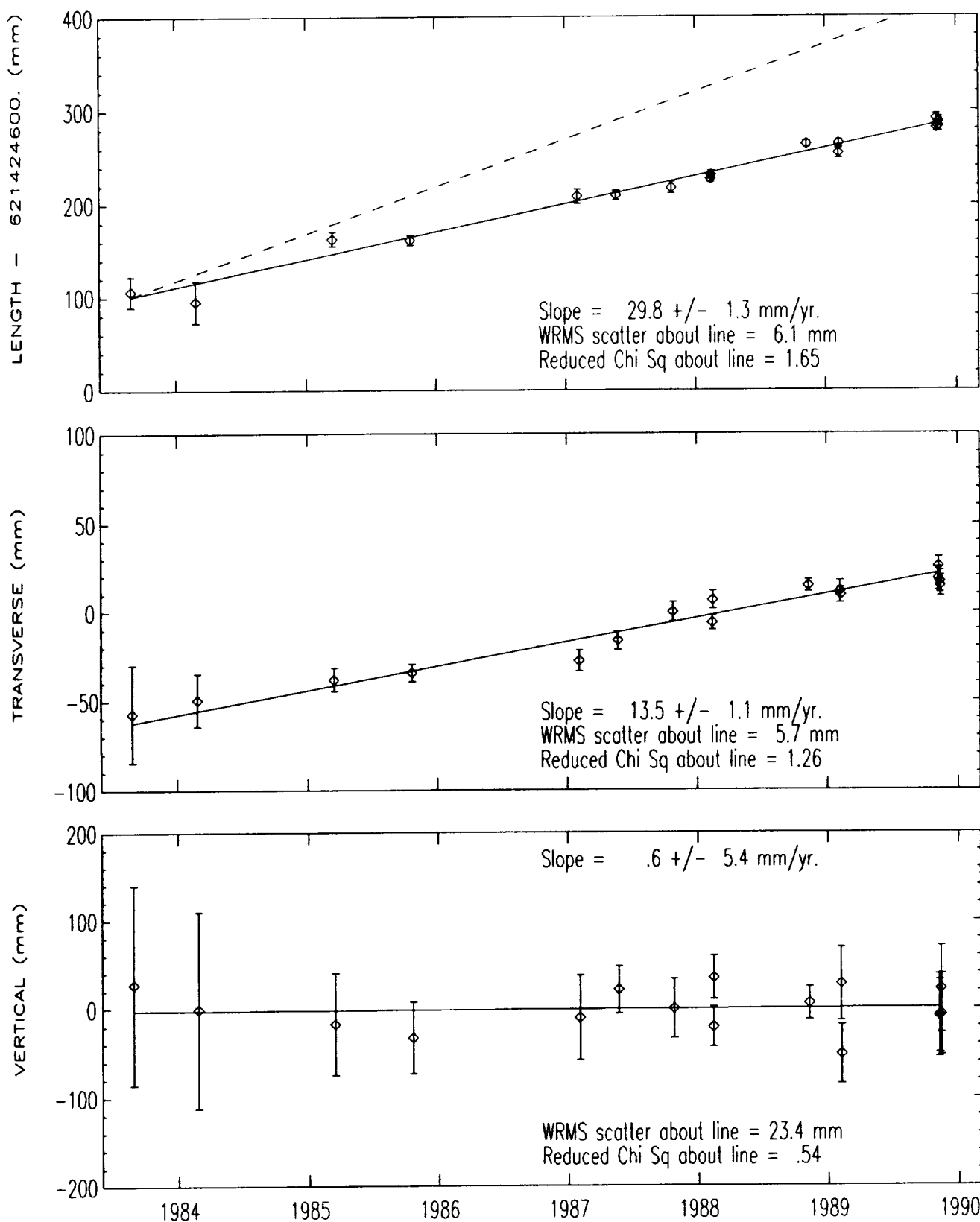
18 Observations



MOJAVE12 TO PT REYES

(Length = 621 km)

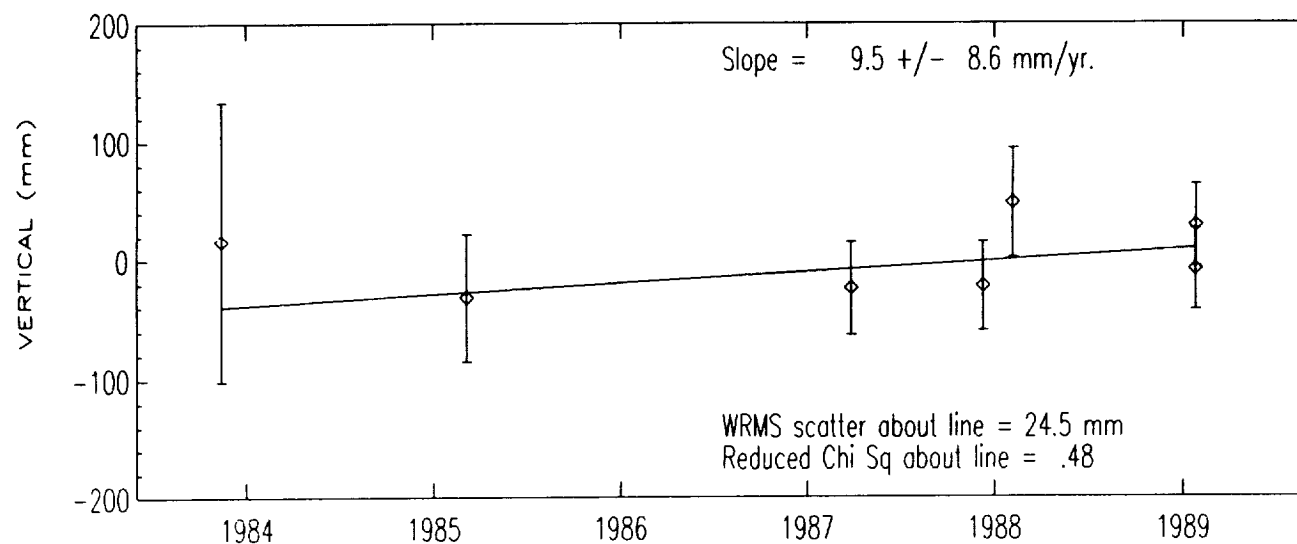
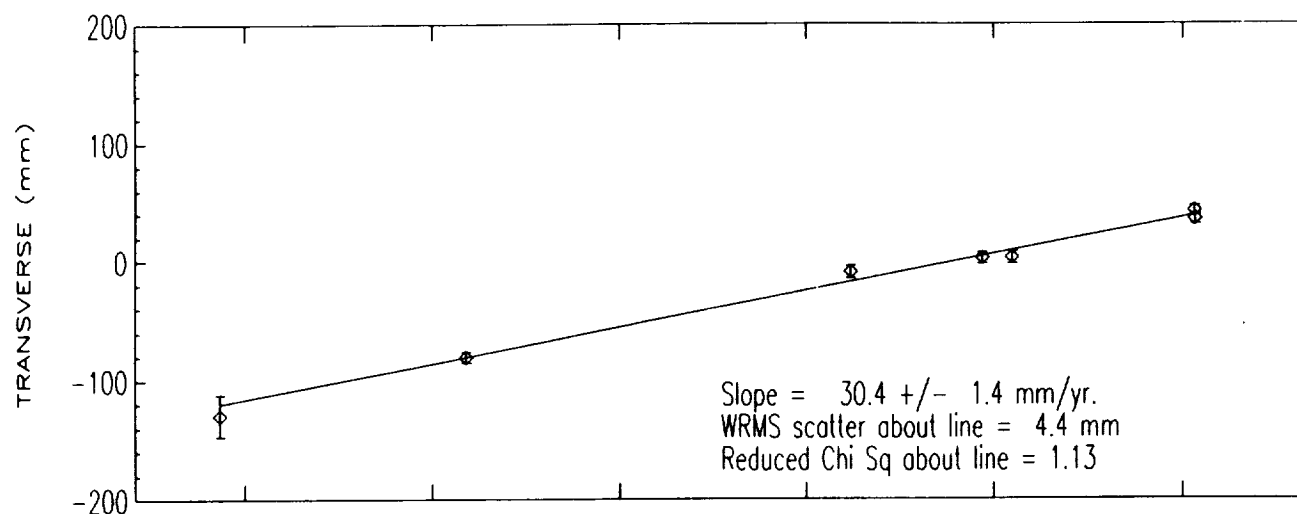
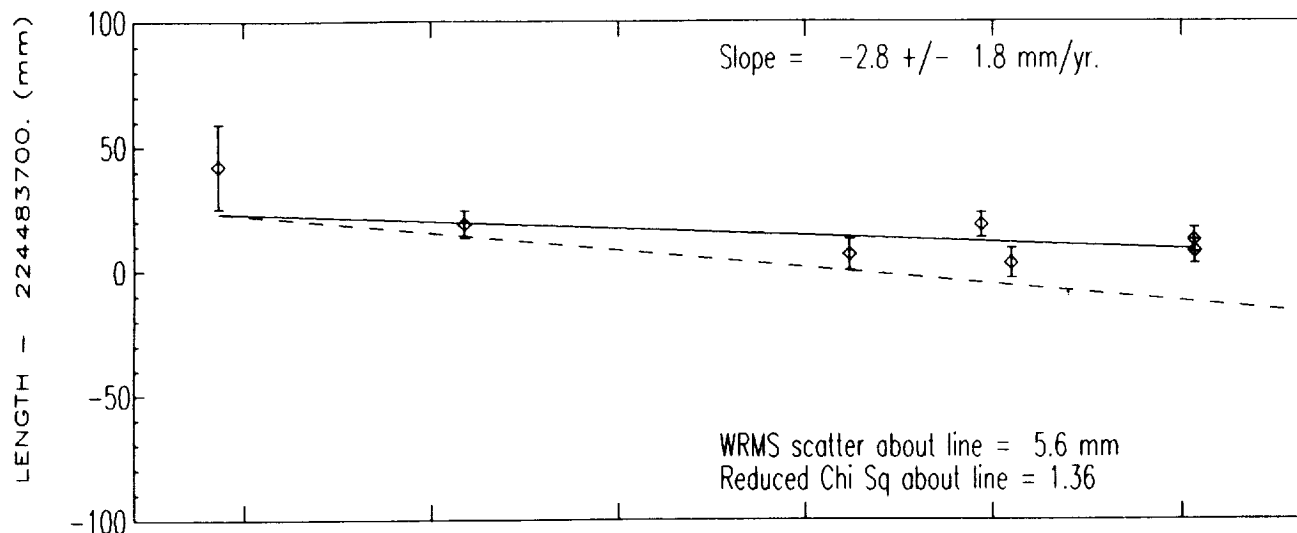
16 Observations



MOJAVE12 TO PVERDES

(Length = 224 km)

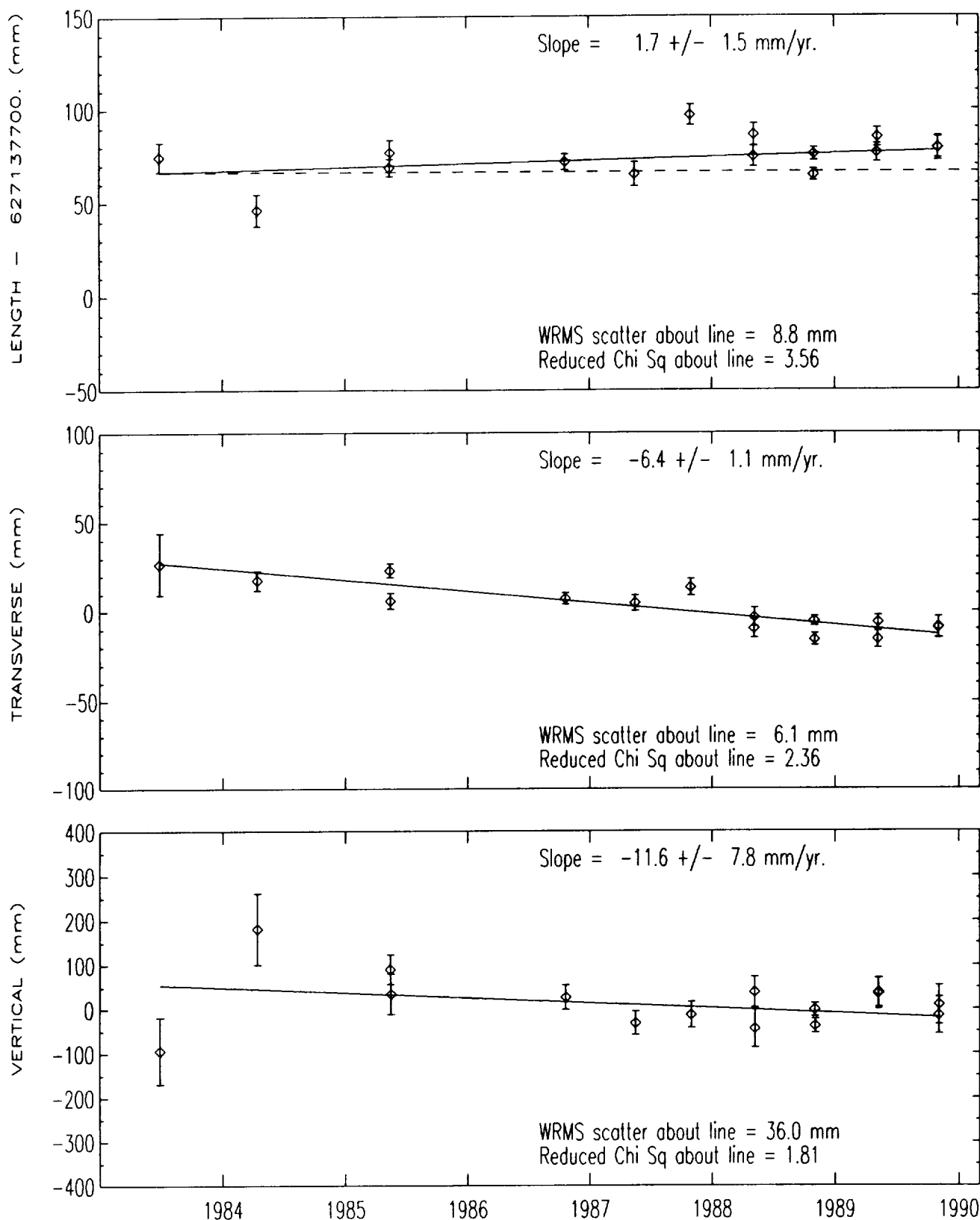
7 Observations



MOJAVE12 TO QUINCY

(Length = 627 km)

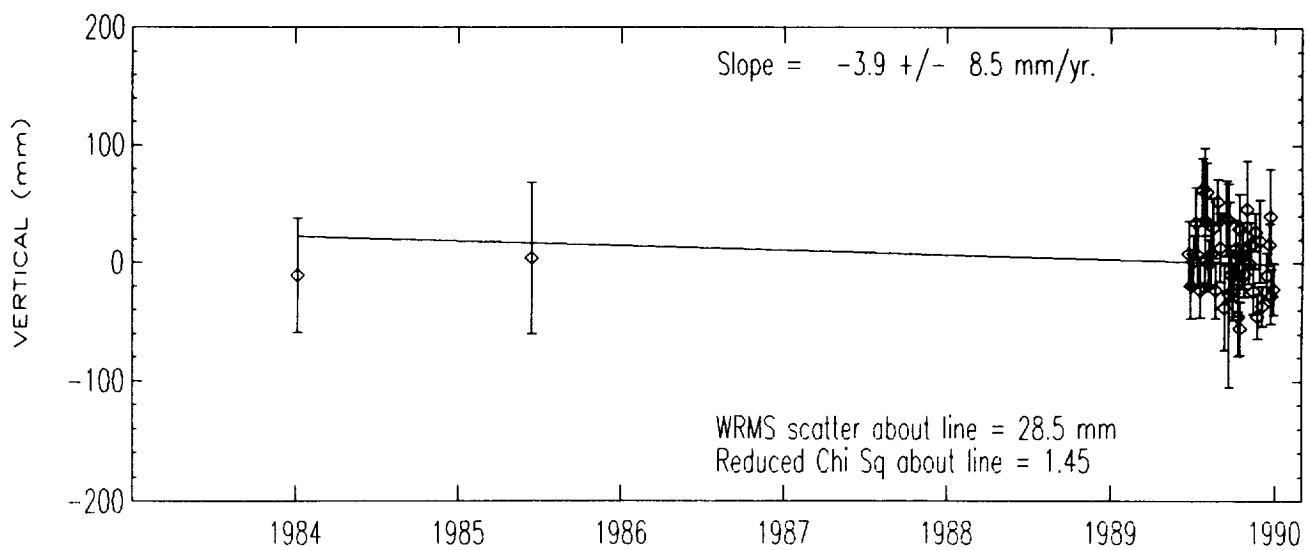
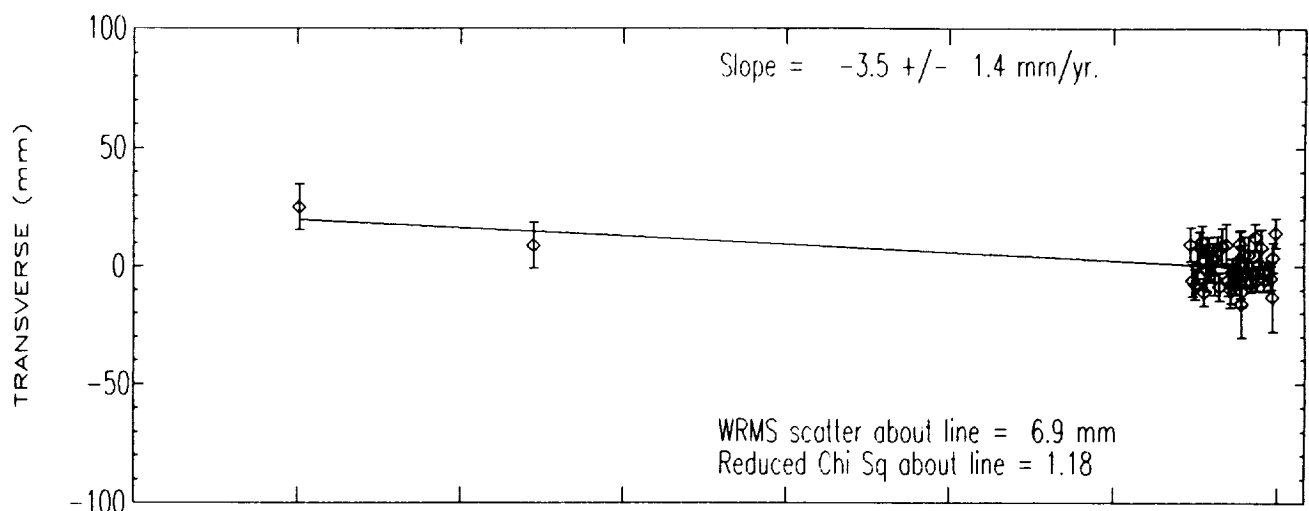
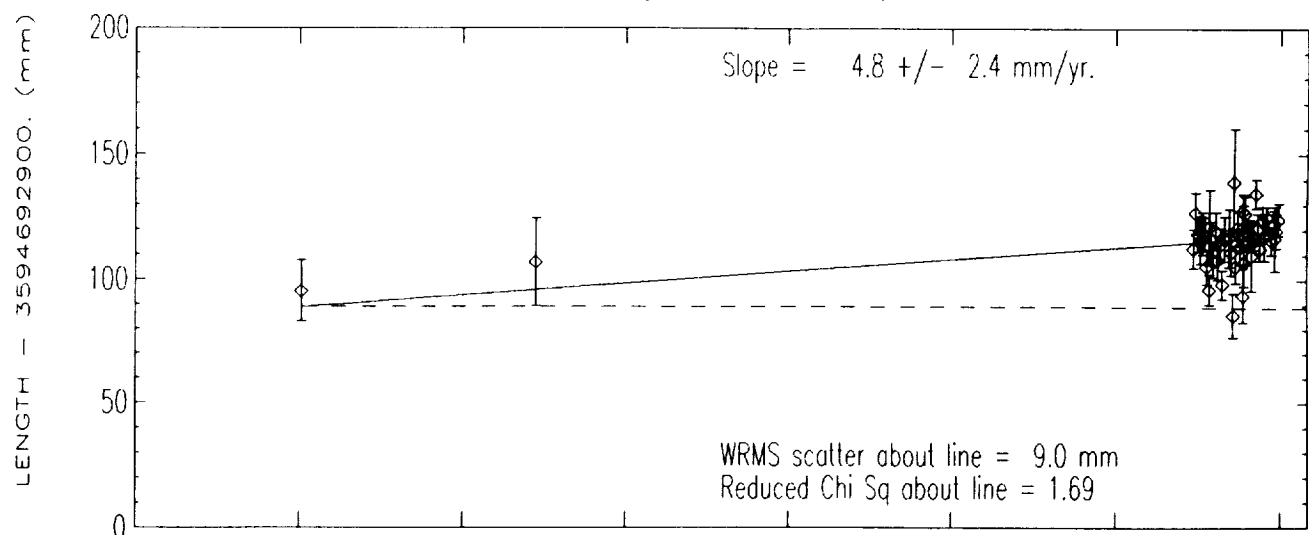
15 Observations



MOJAVE12 TO RICHMOND

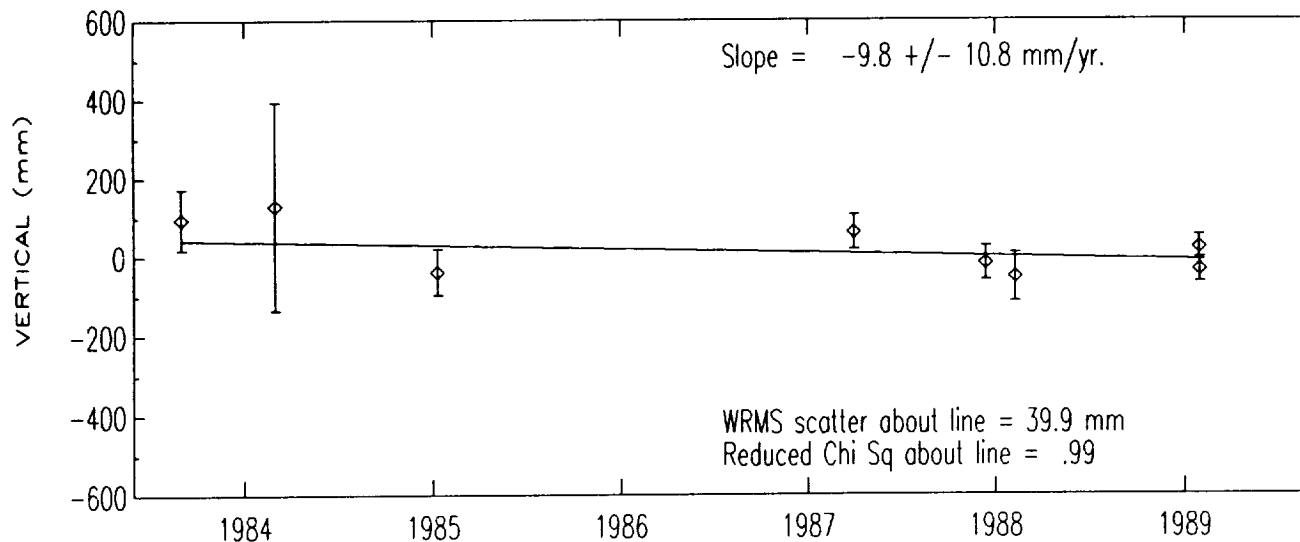
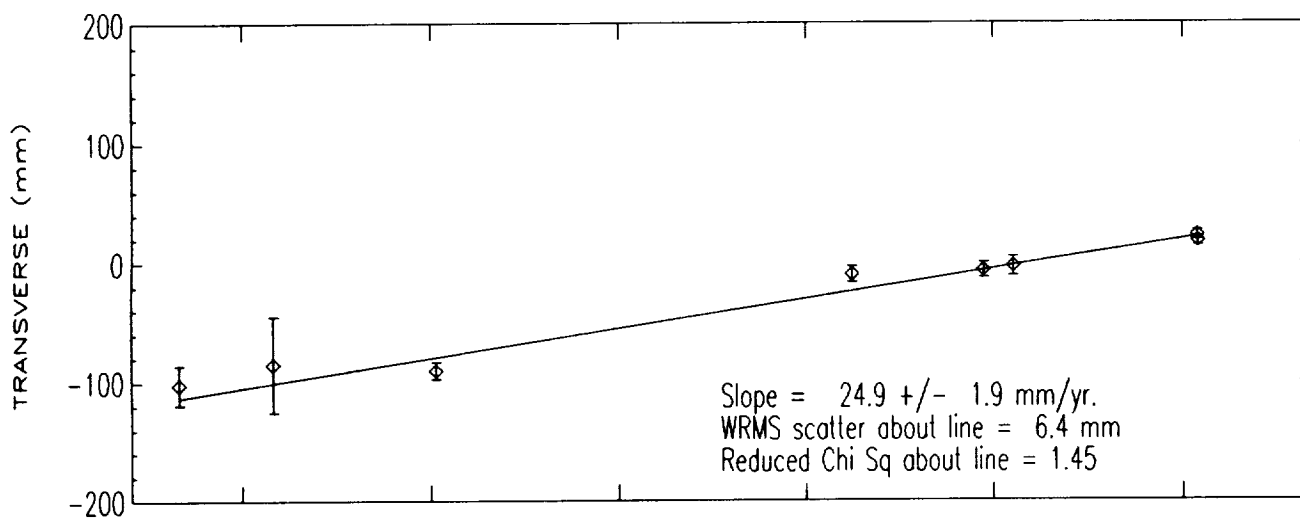
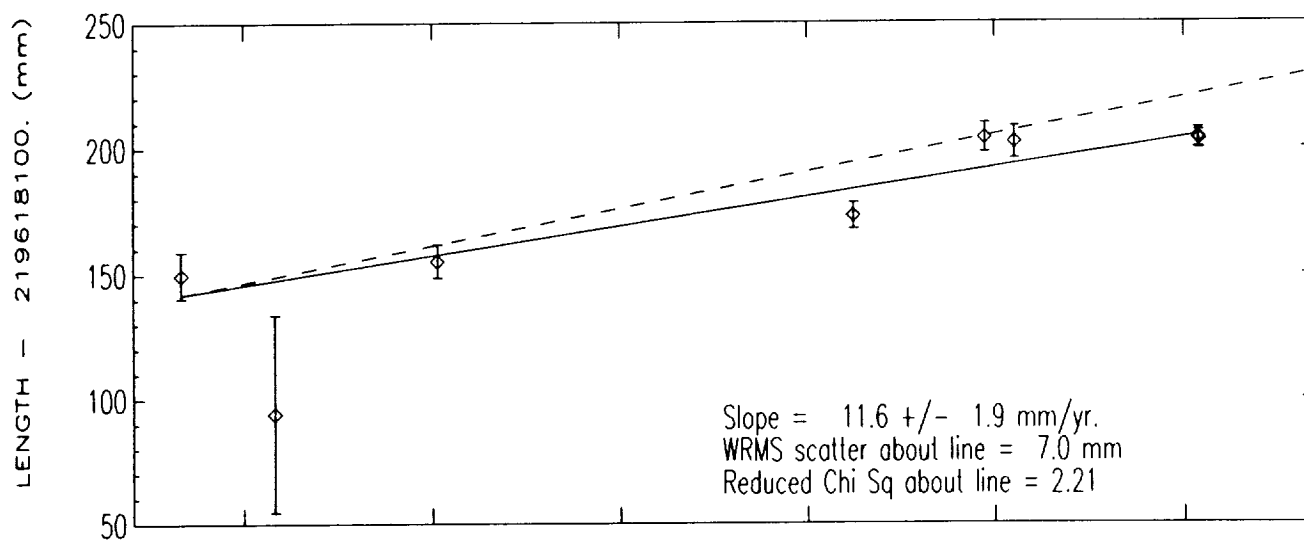
(Length = 3594 km)

45 Observations



MOJAVE12 TO SANPAULA (Length = 219 km)

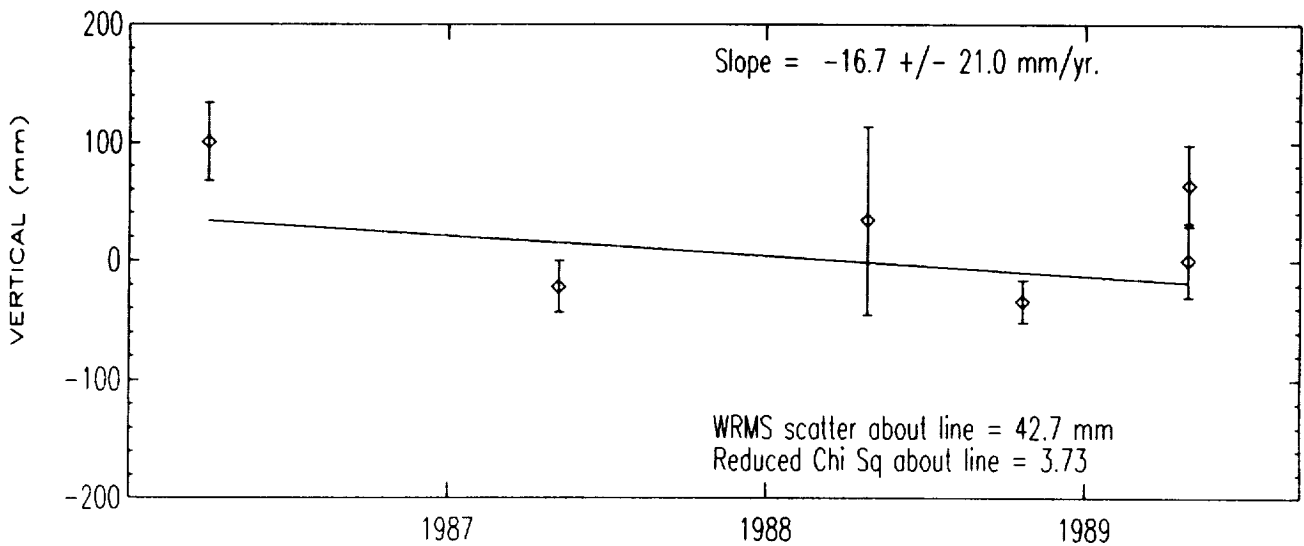
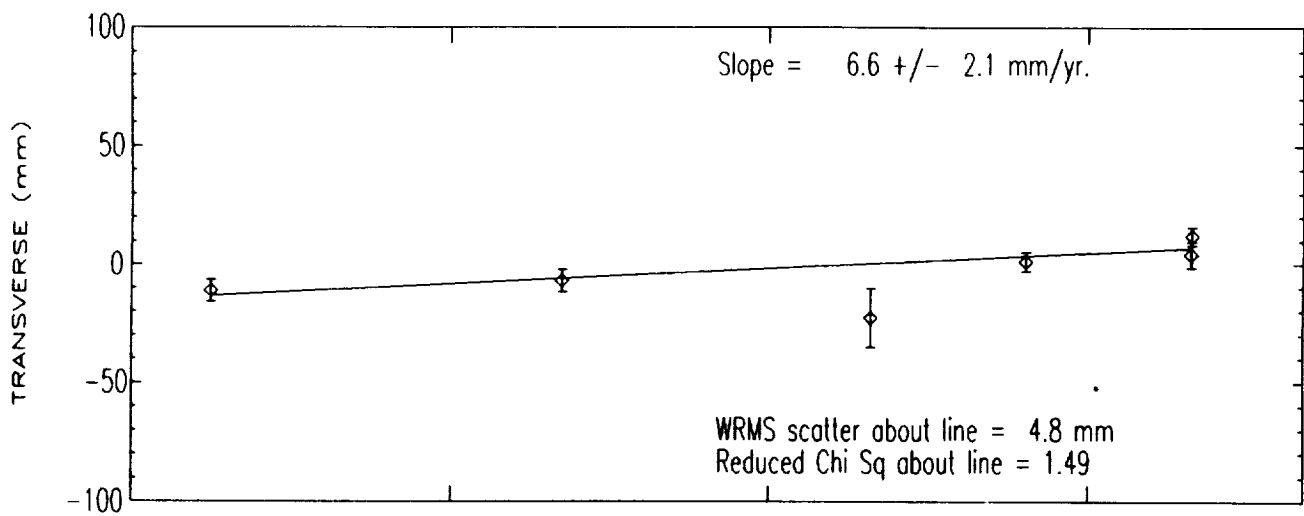
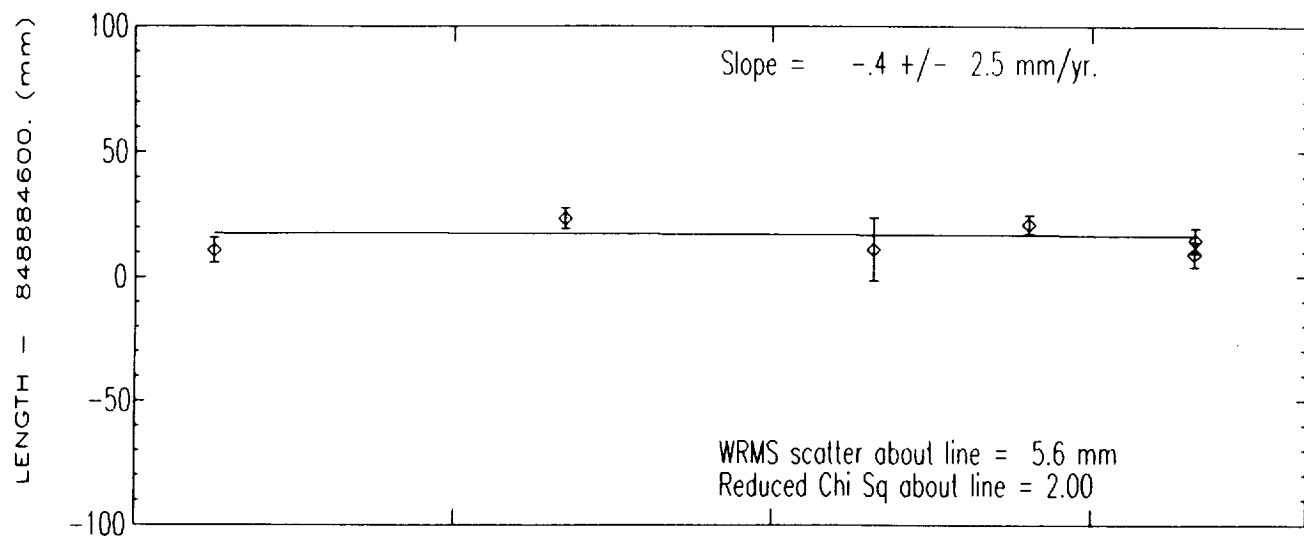
8 Observations



MOJAVE12 TO VERNAL

(Length = 848 km)

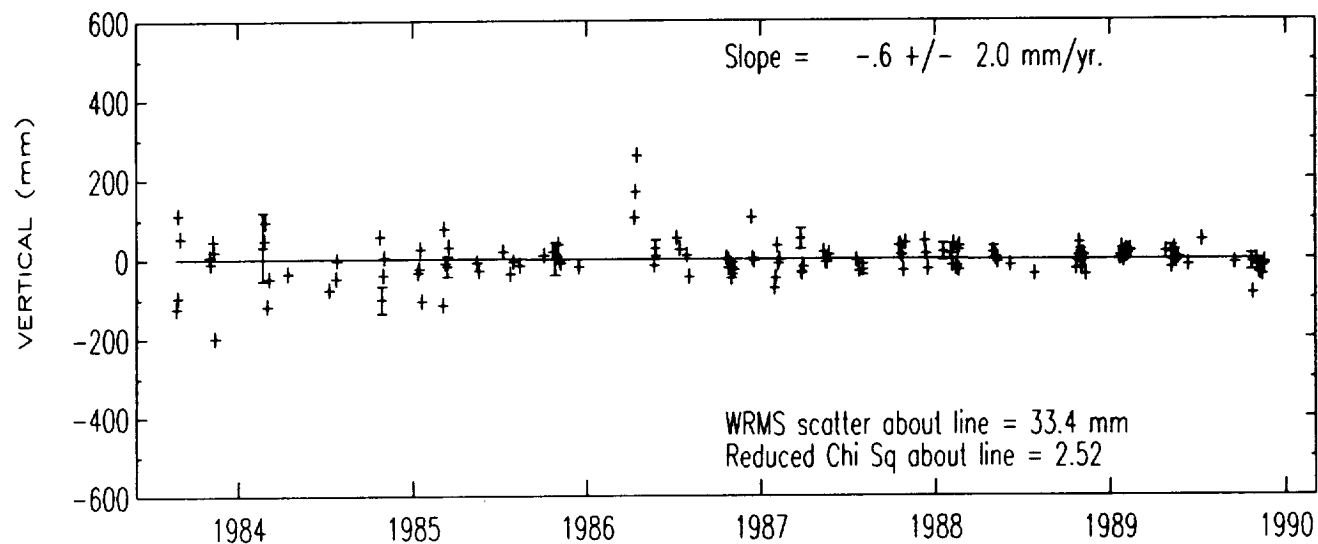
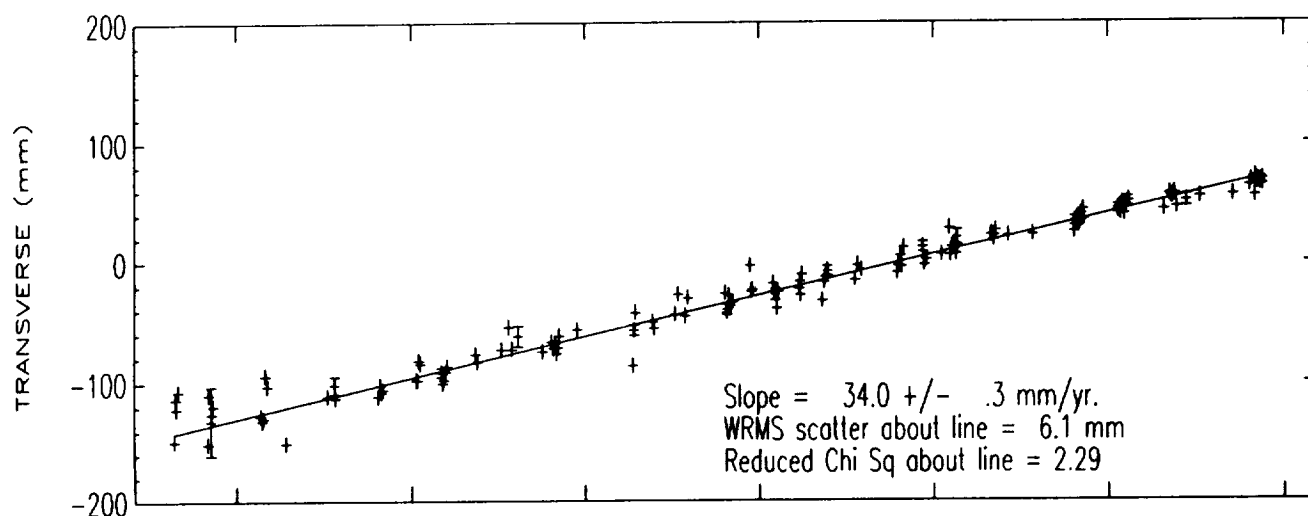
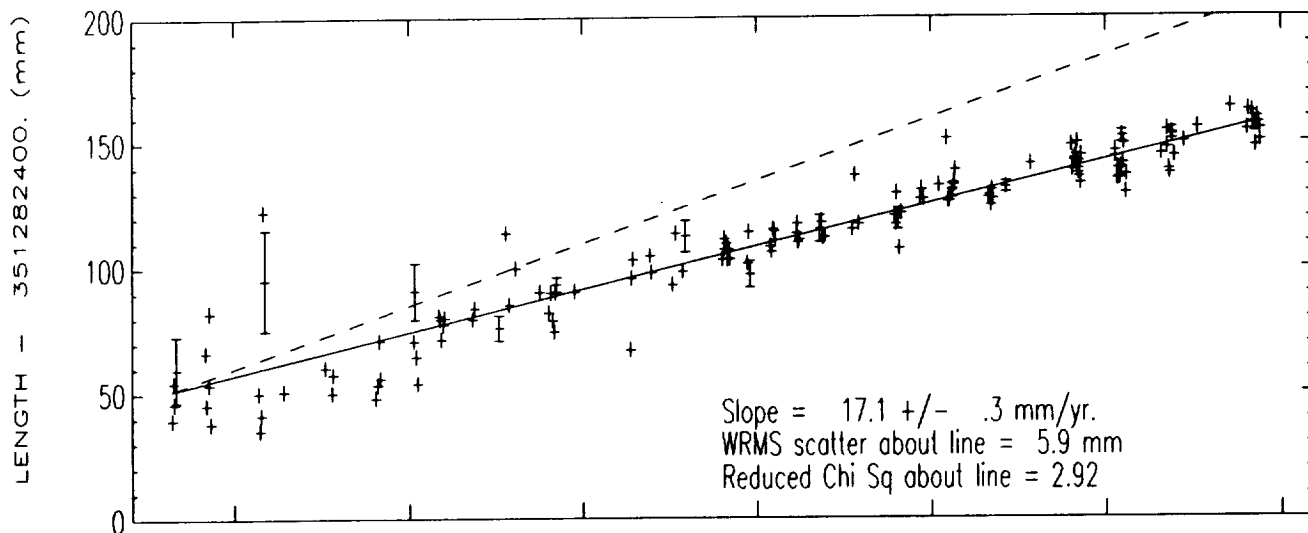
6 Observations



MOJAVE12 TO VNDNBERG

(Length = 351 km)

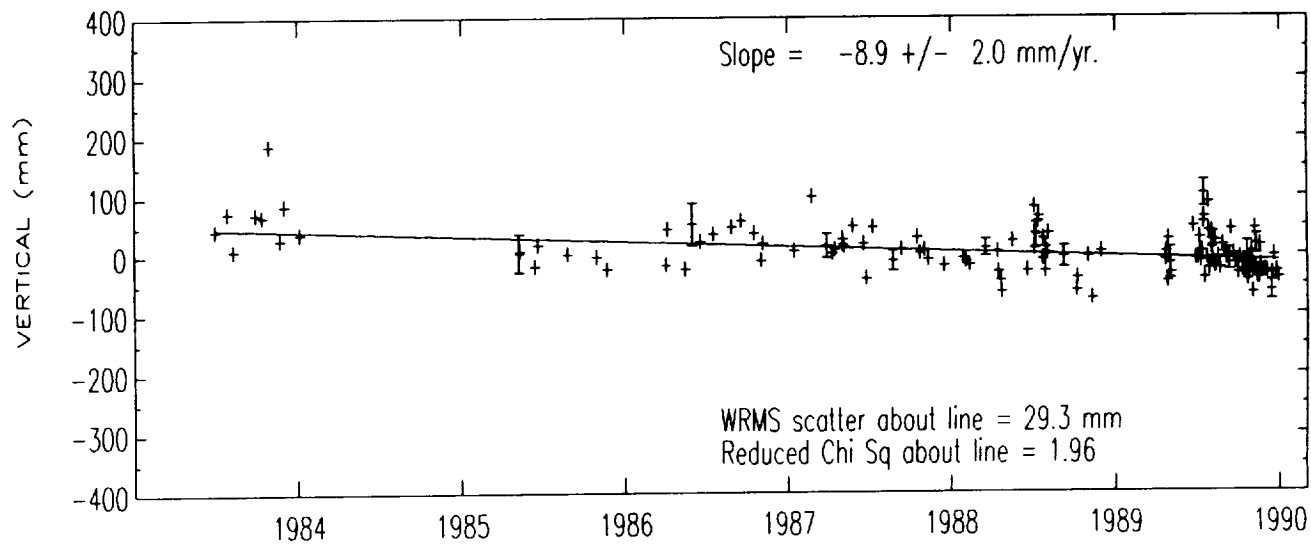
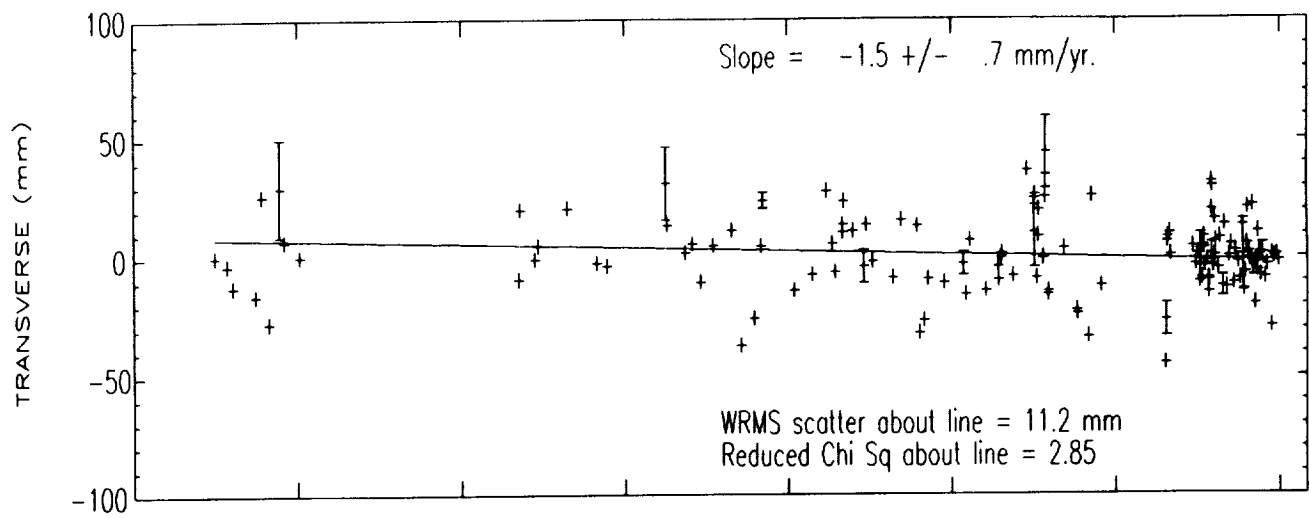
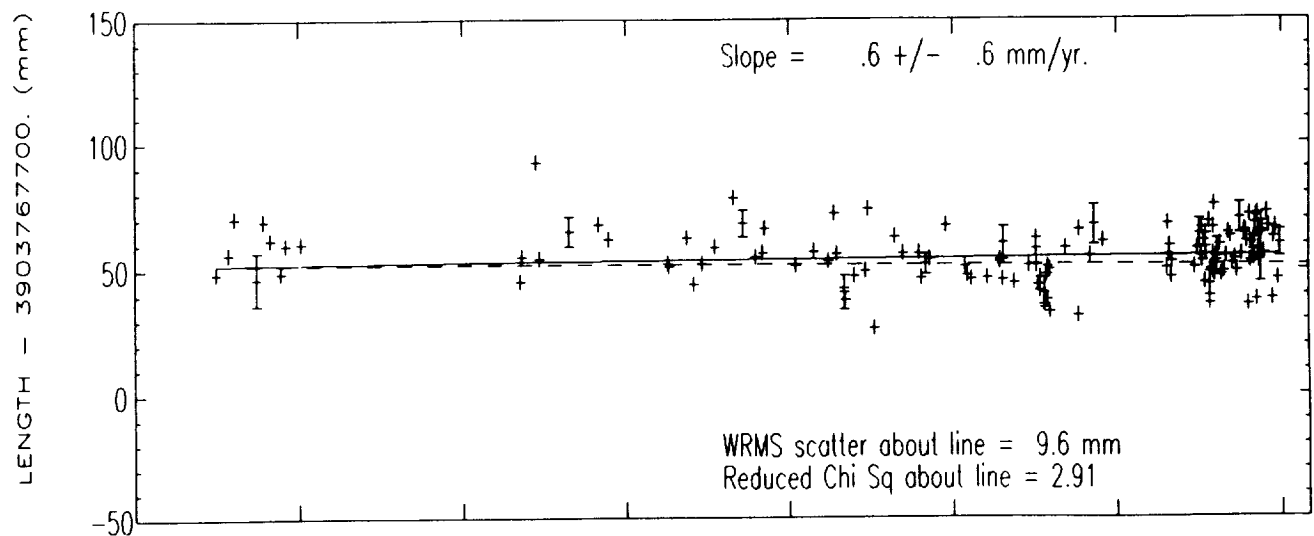
149 Observations



MOJAVE12 TO WESTFORD

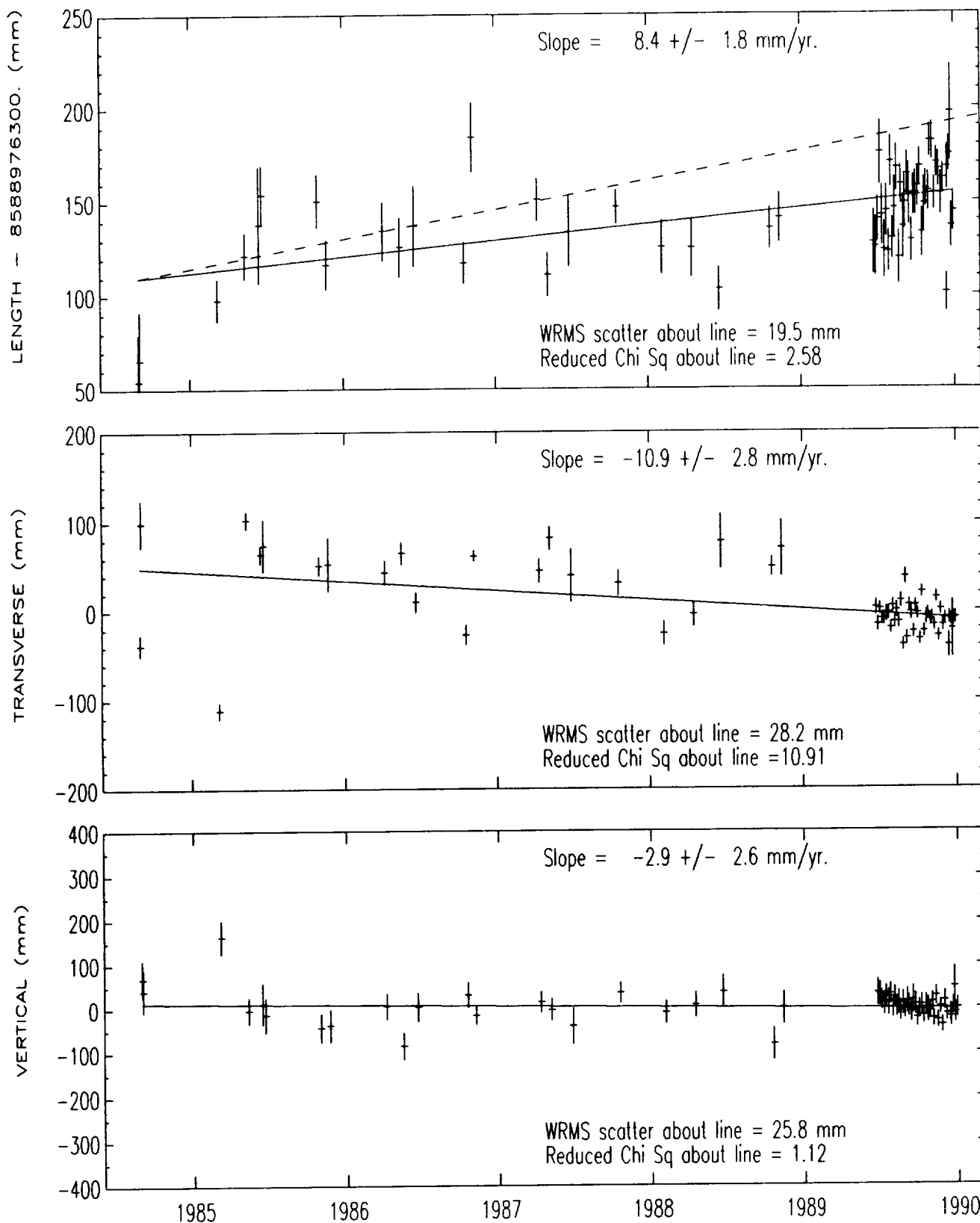
(Length = 3903 km)

144 Observations



MOJAVE12 TO WETTZELL (Length = 8588 km)

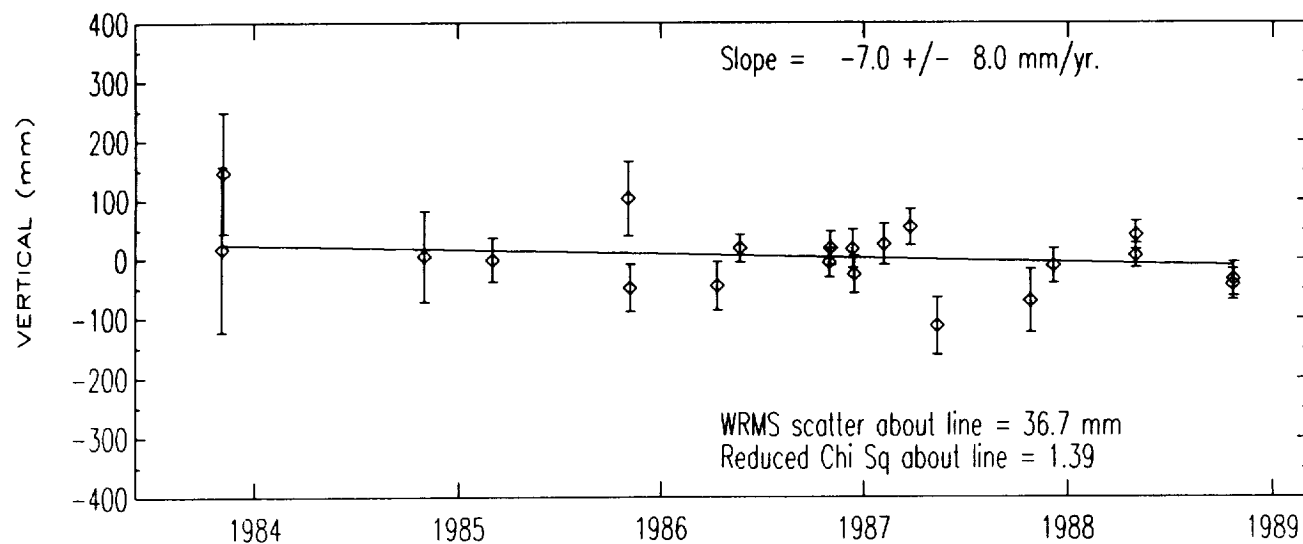
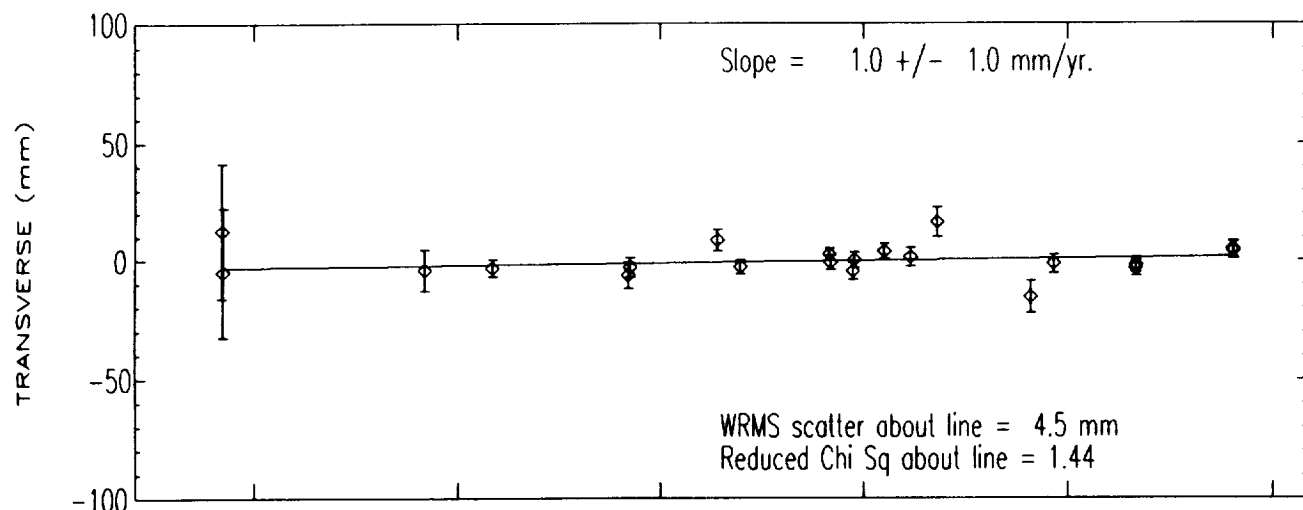
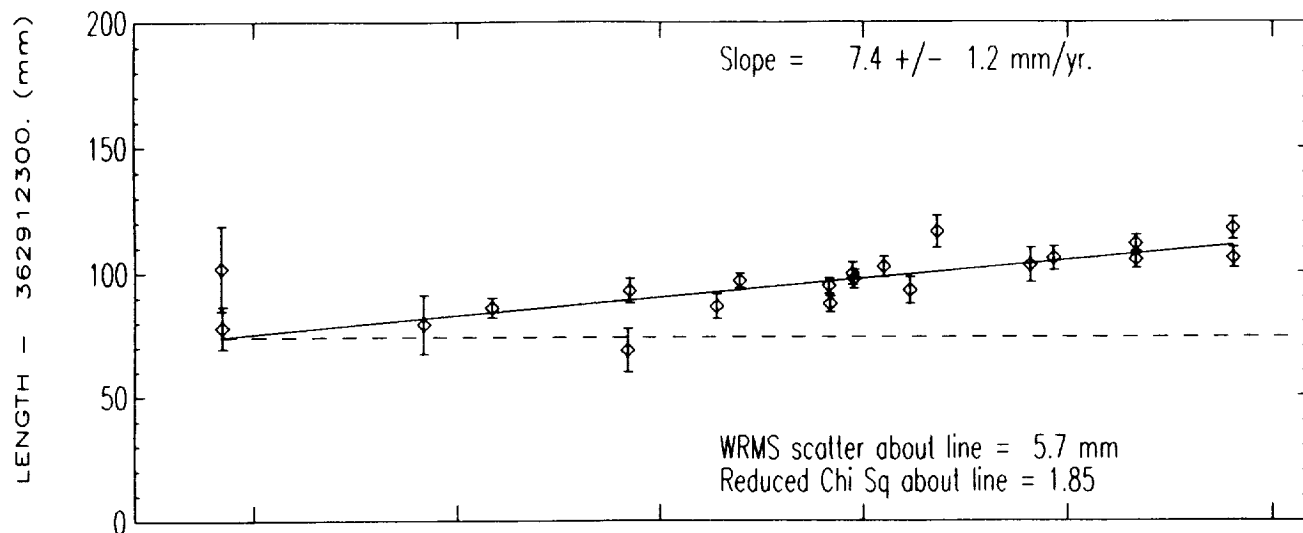
62 Observations



MOJAVE12 TO YUMA

(Length = 362 km)

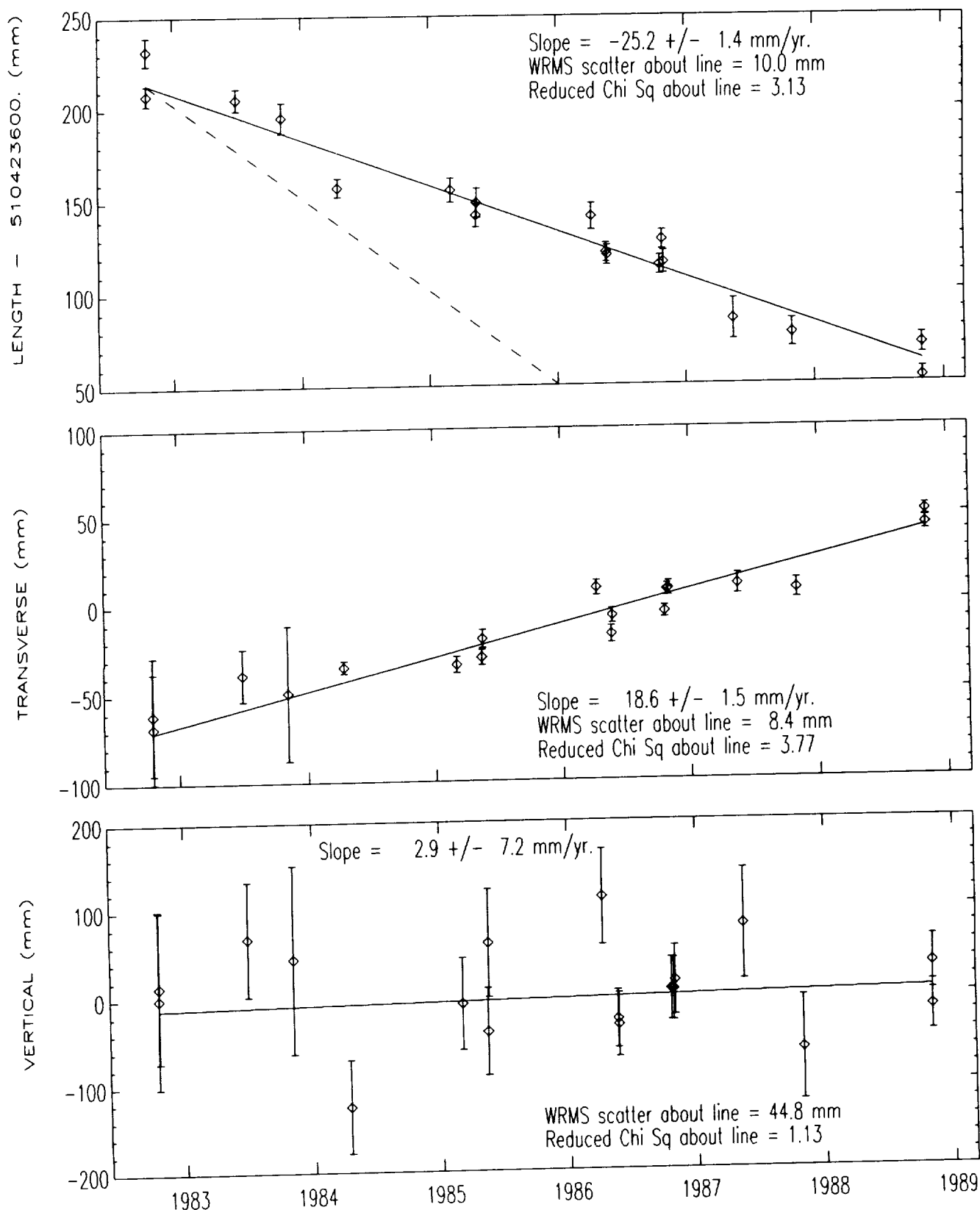
21 Observations



MON PEAK TO OVRO 130

(Length = 510 km)

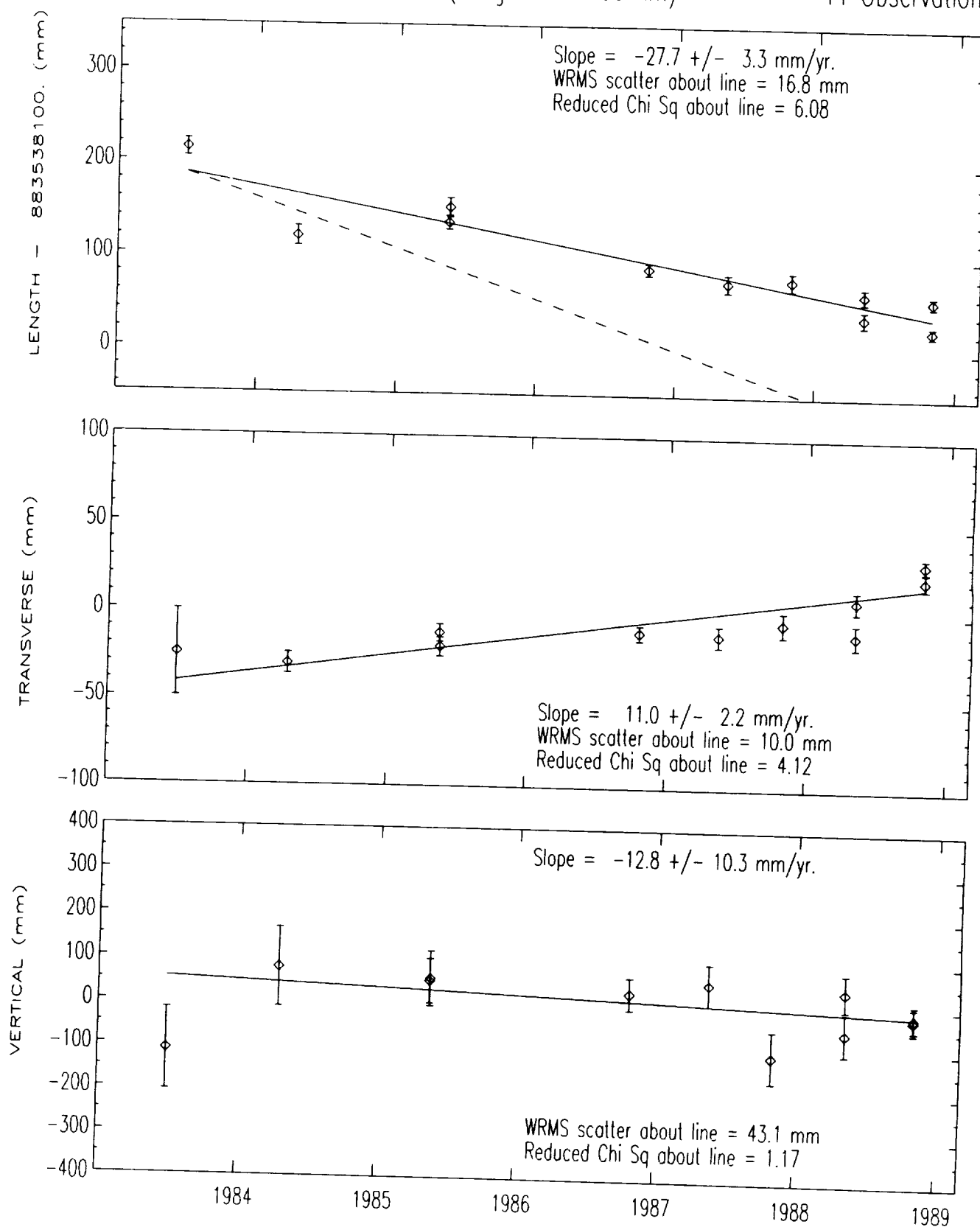
18 Observations



MON PEAK TO QUINCY

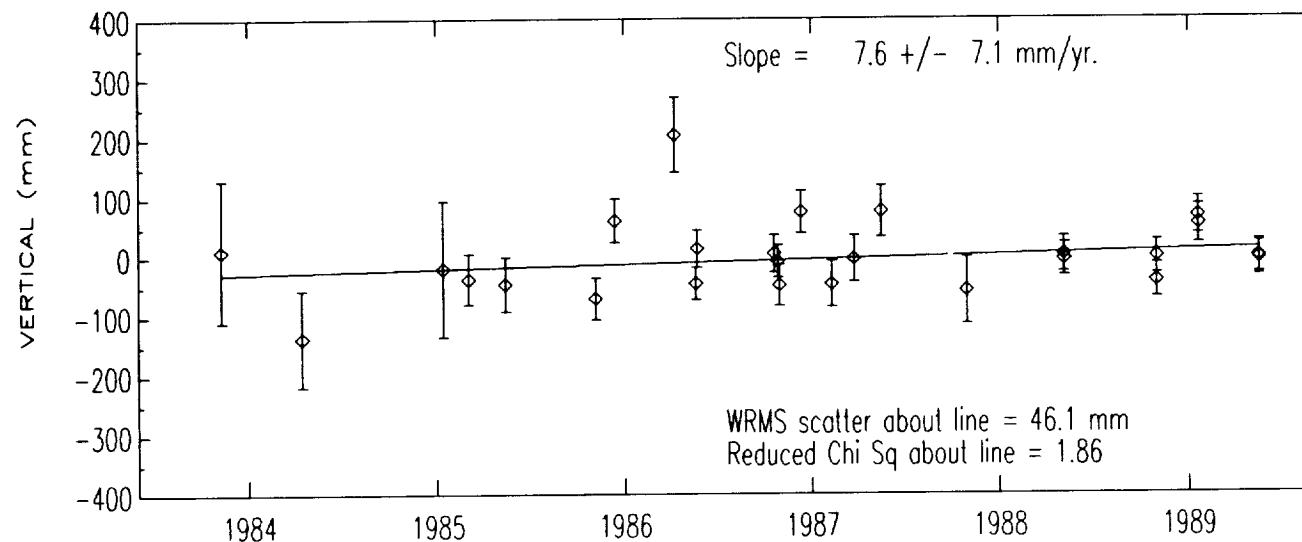
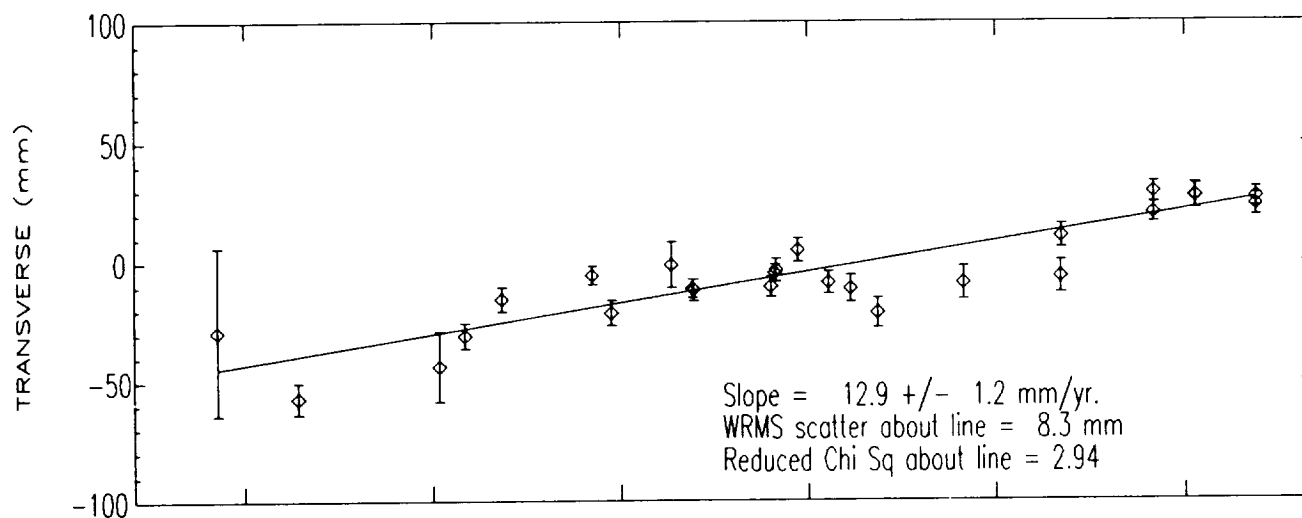
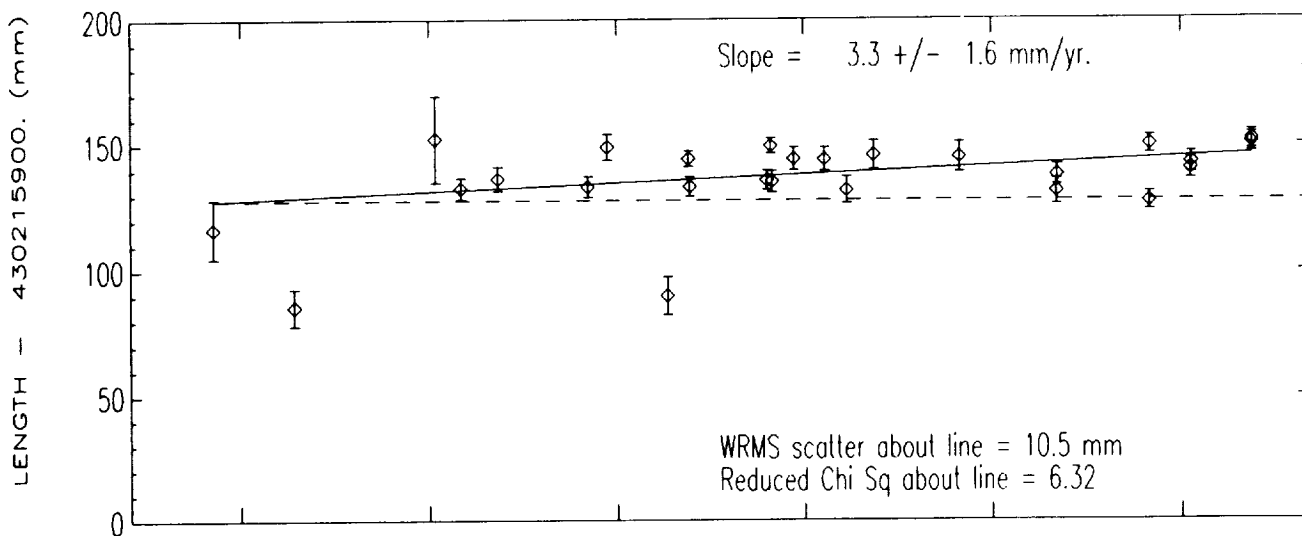
(Length = 883 km)

11 Observations



MON PEAK TO VNDNBERG (Length = 430 km)

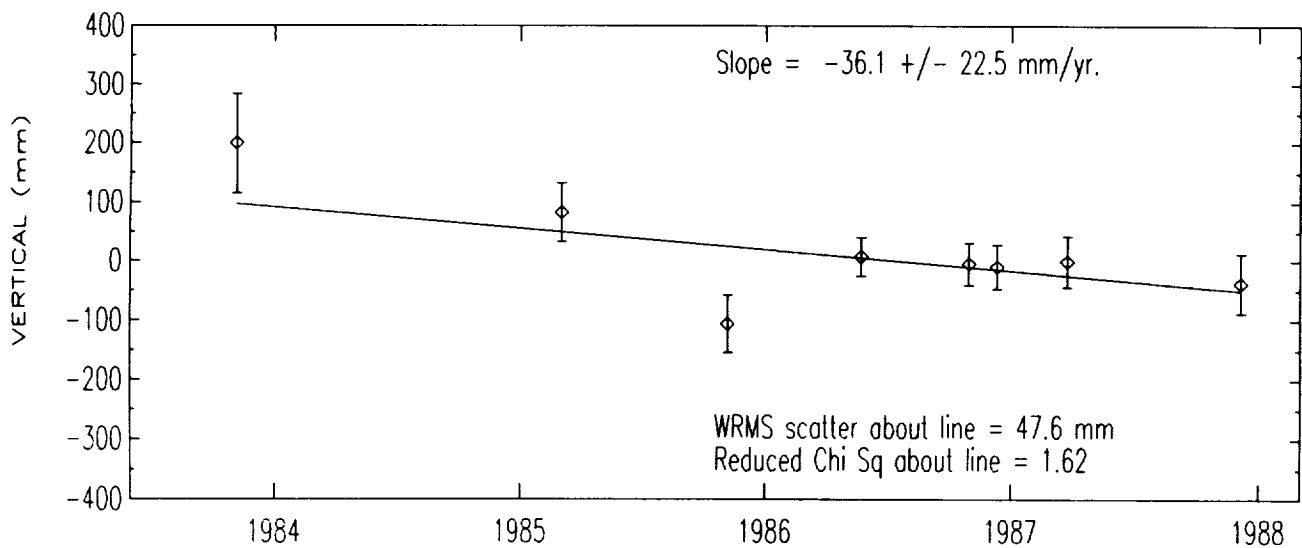
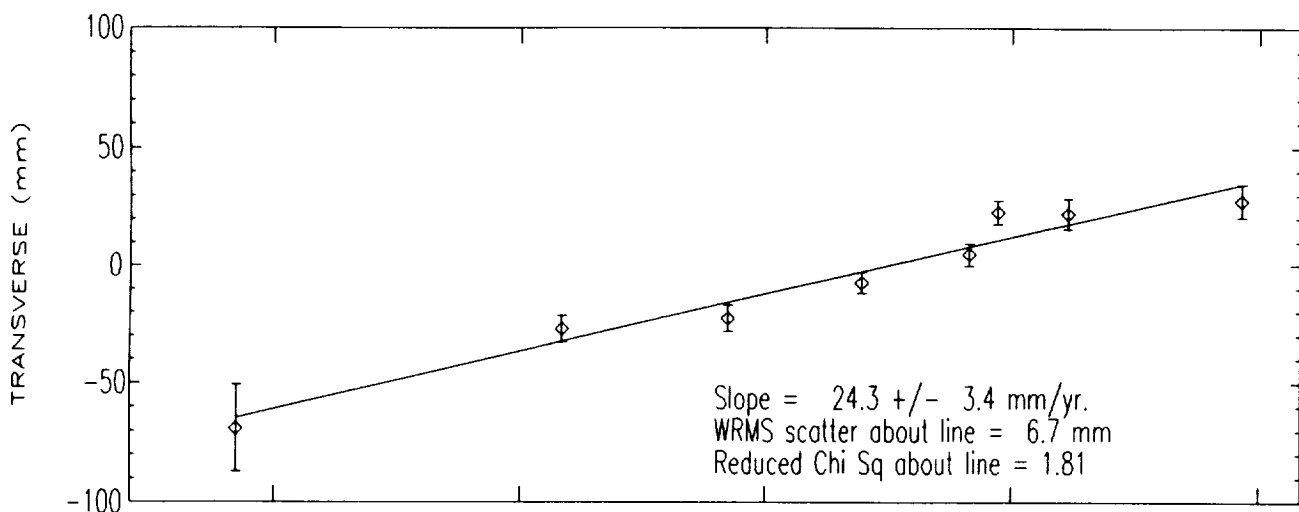
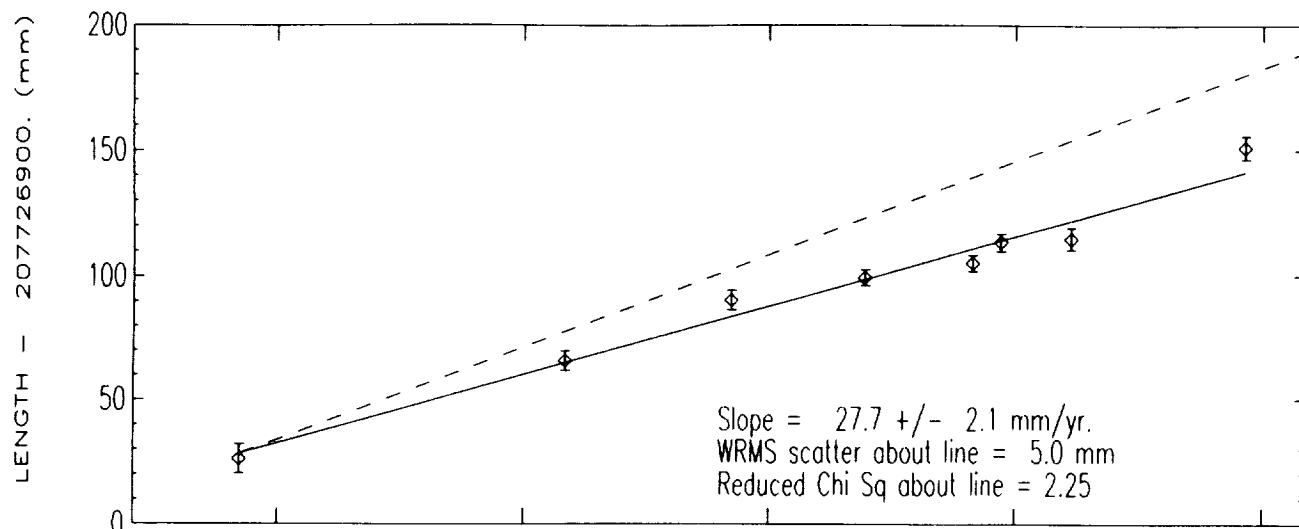
26 Observations



MON PEAK TO YUMA

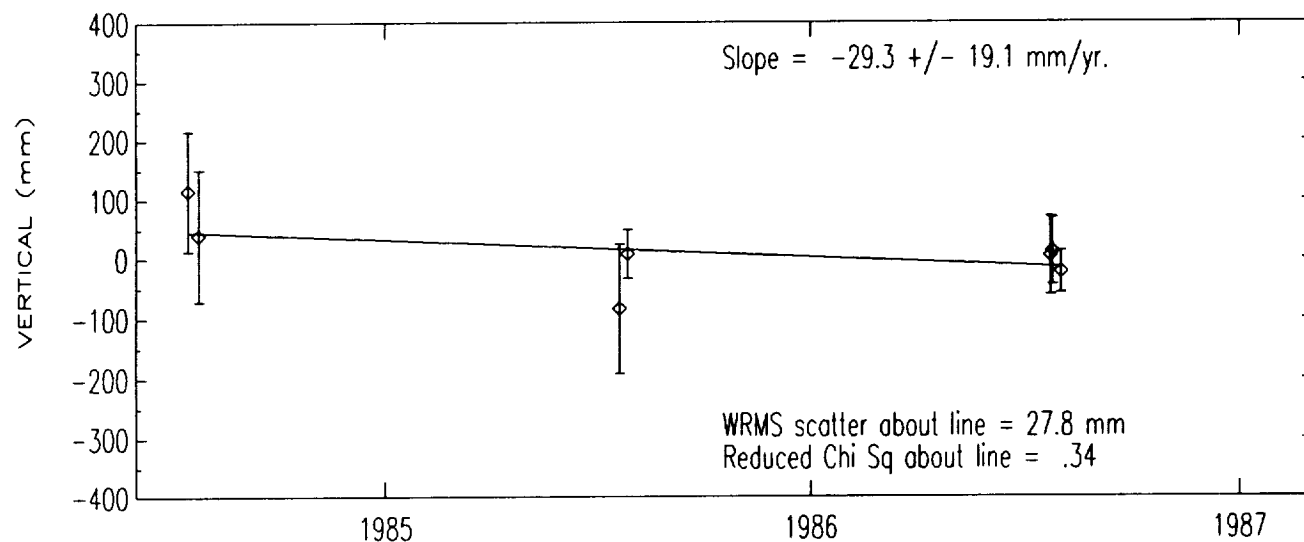
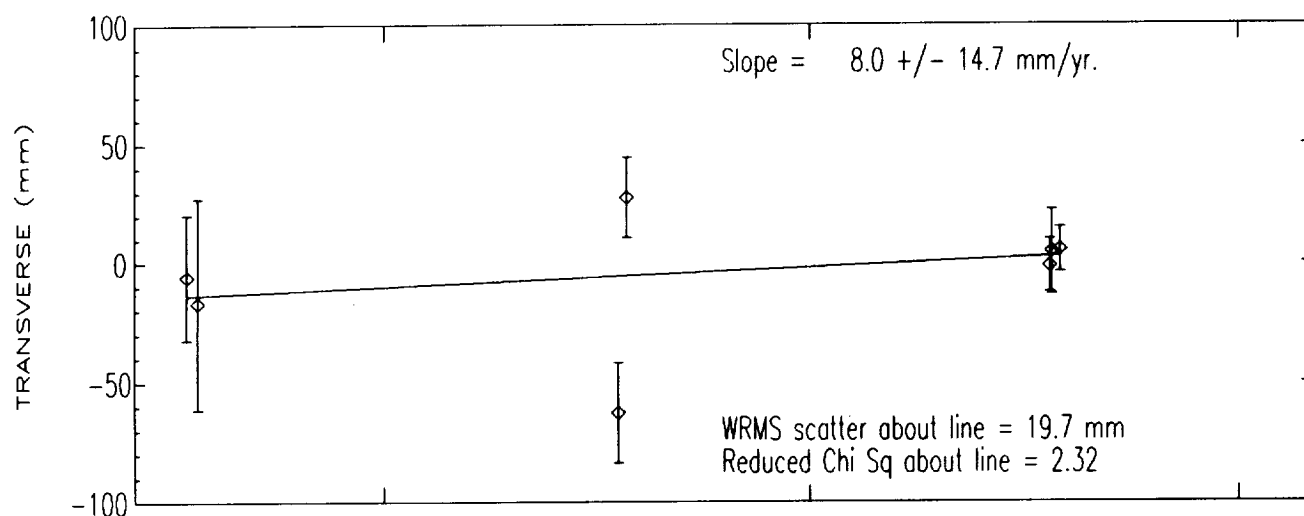
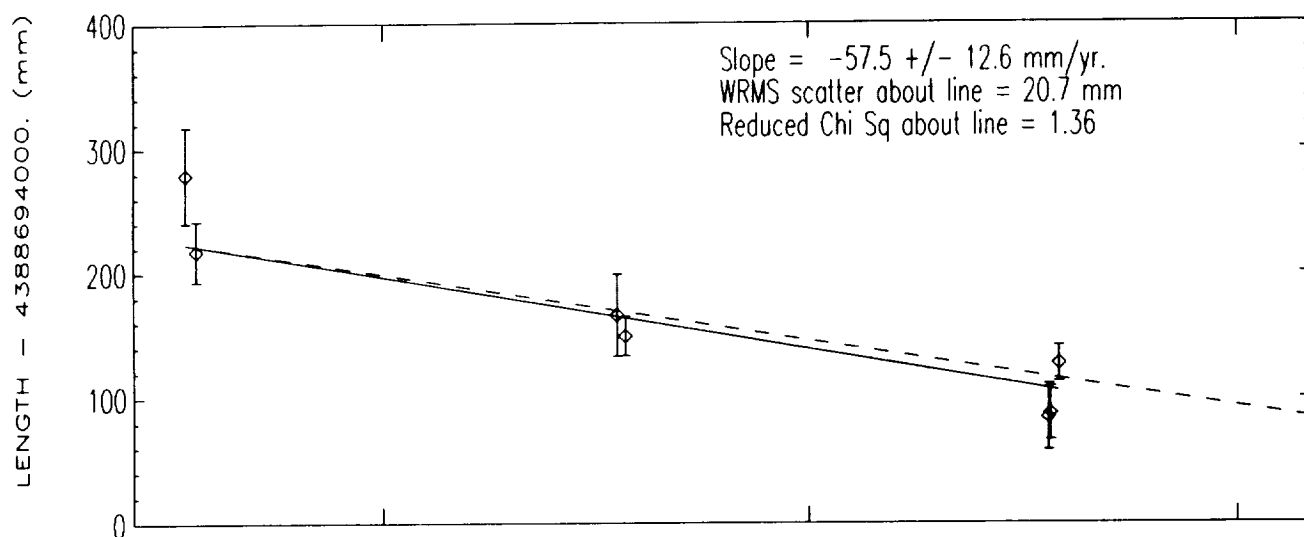
(Length = 207 km)

8 Observations



NOME TO VNDNBERG (Length = 4388 km)

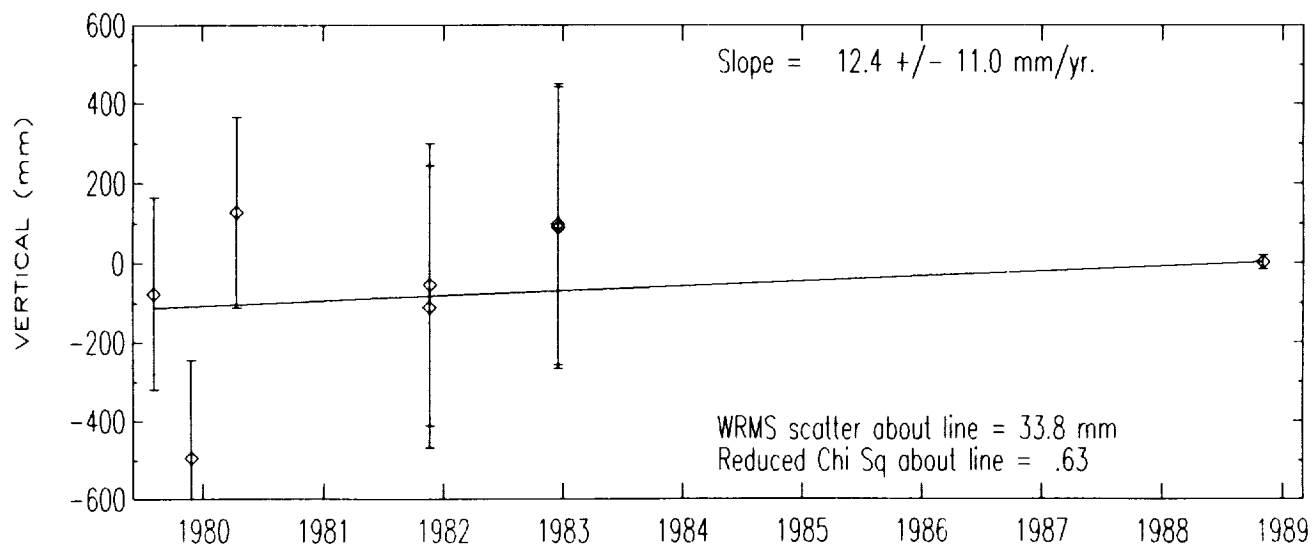
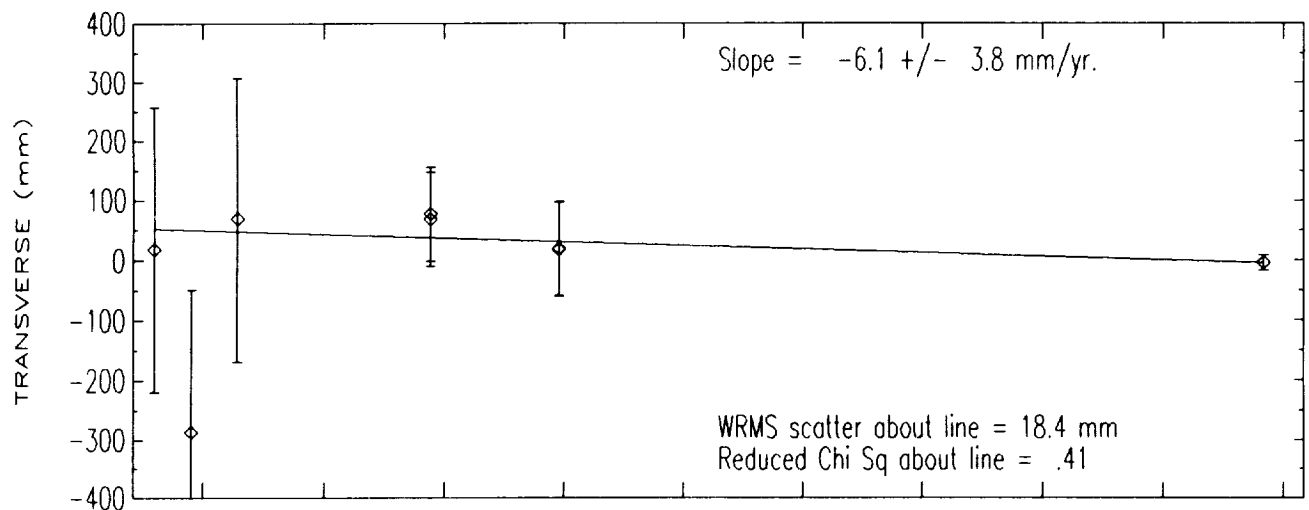
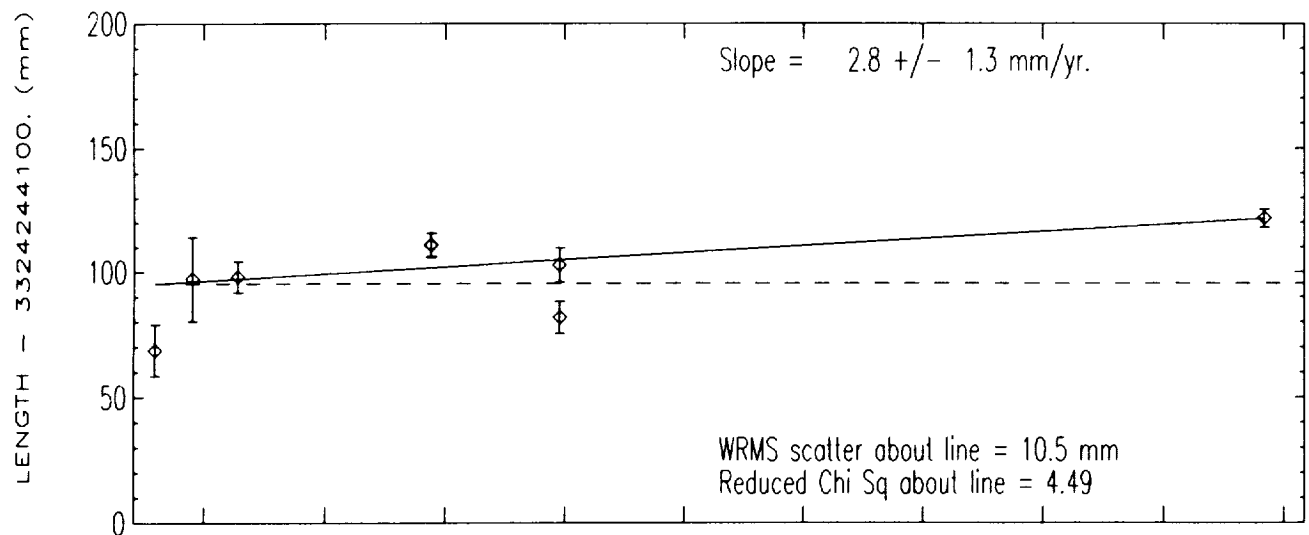
7 Observations



NRAO 140 TO OVRO 130

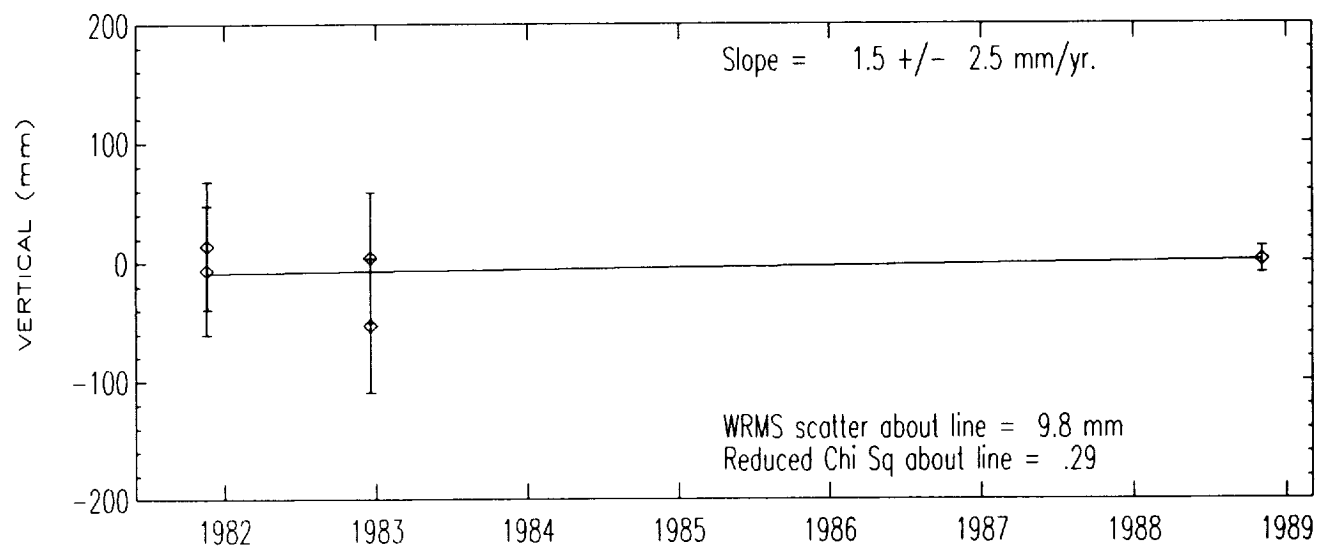
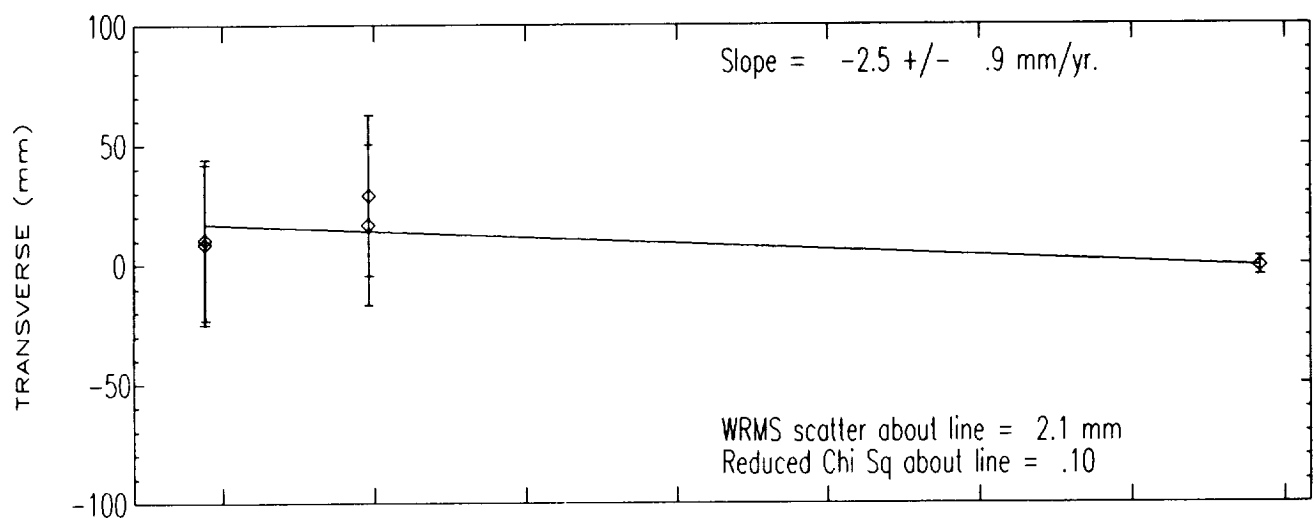
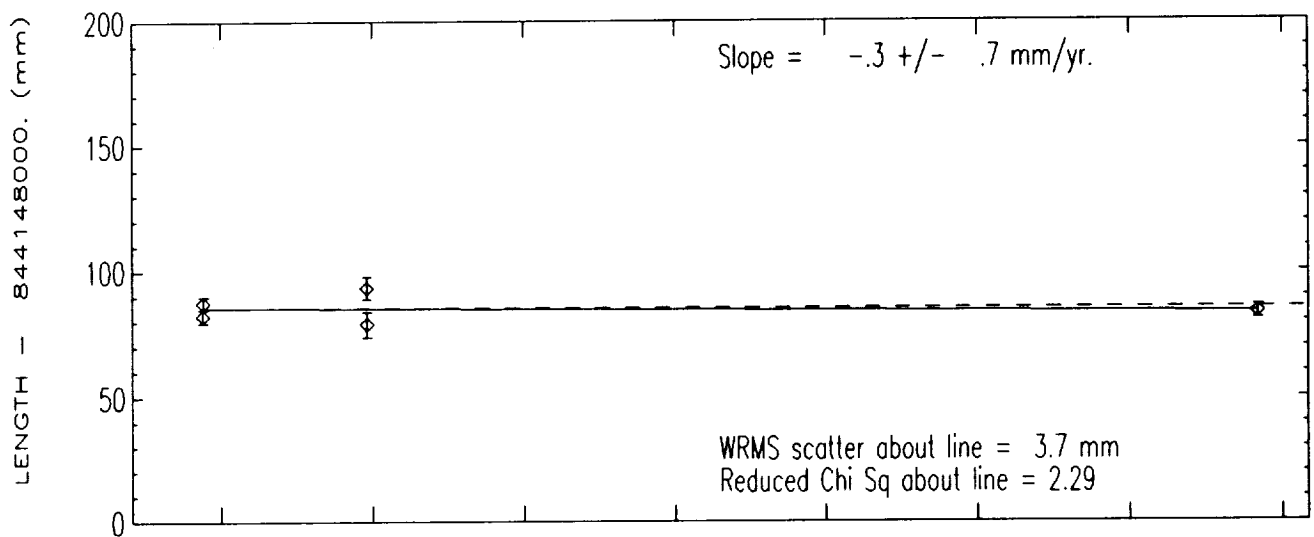
(Length = 3324 km)

8 Observations



NRAO 140 TO WESTFORD (Length = 844 km)

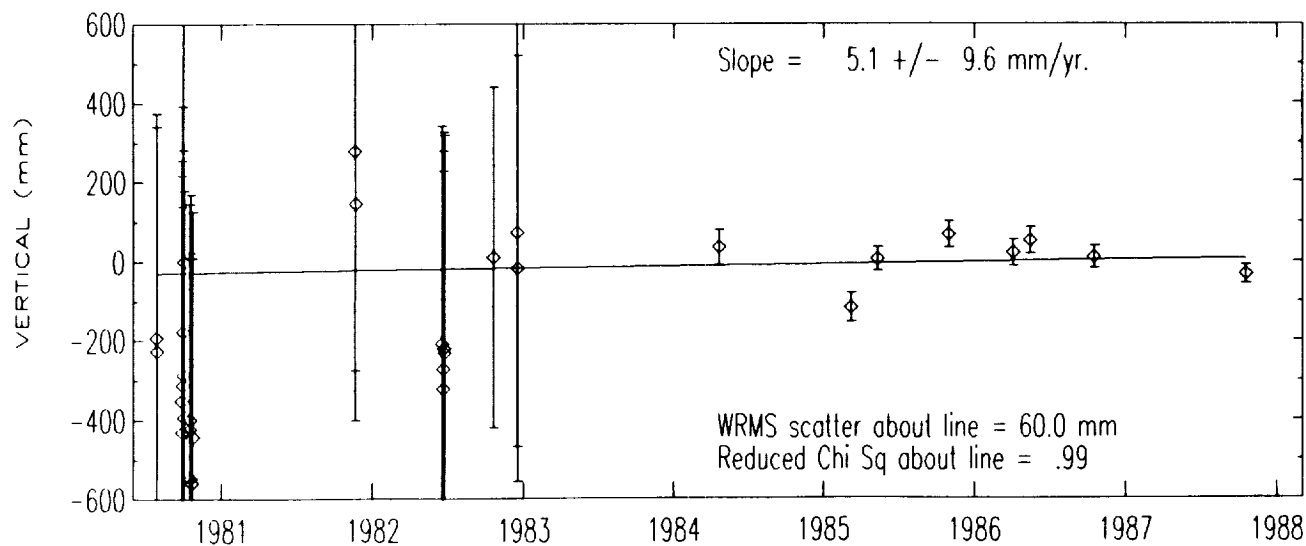
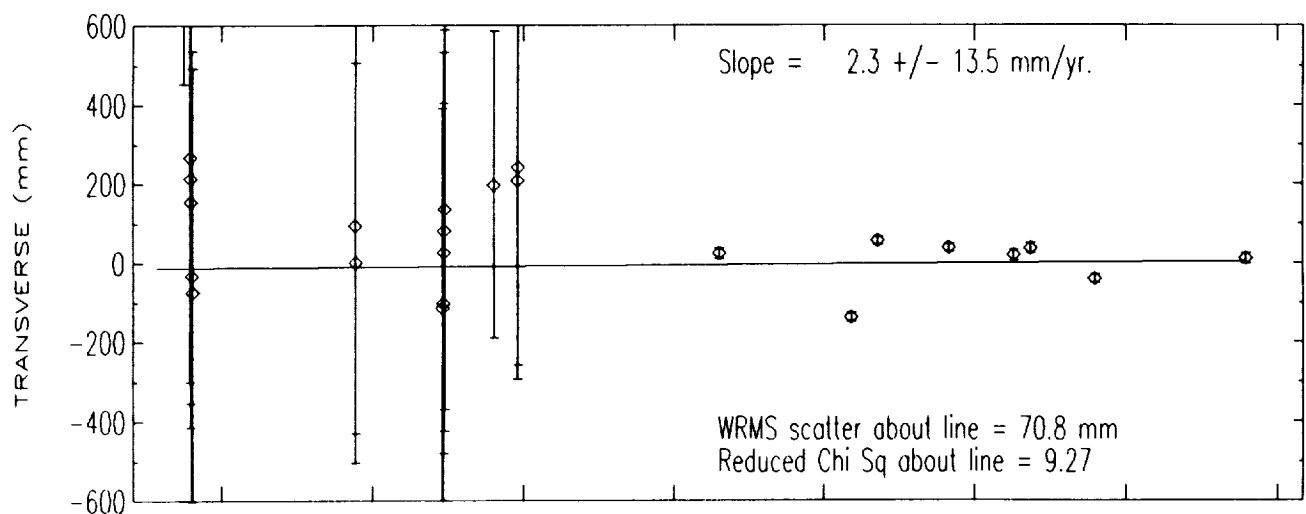
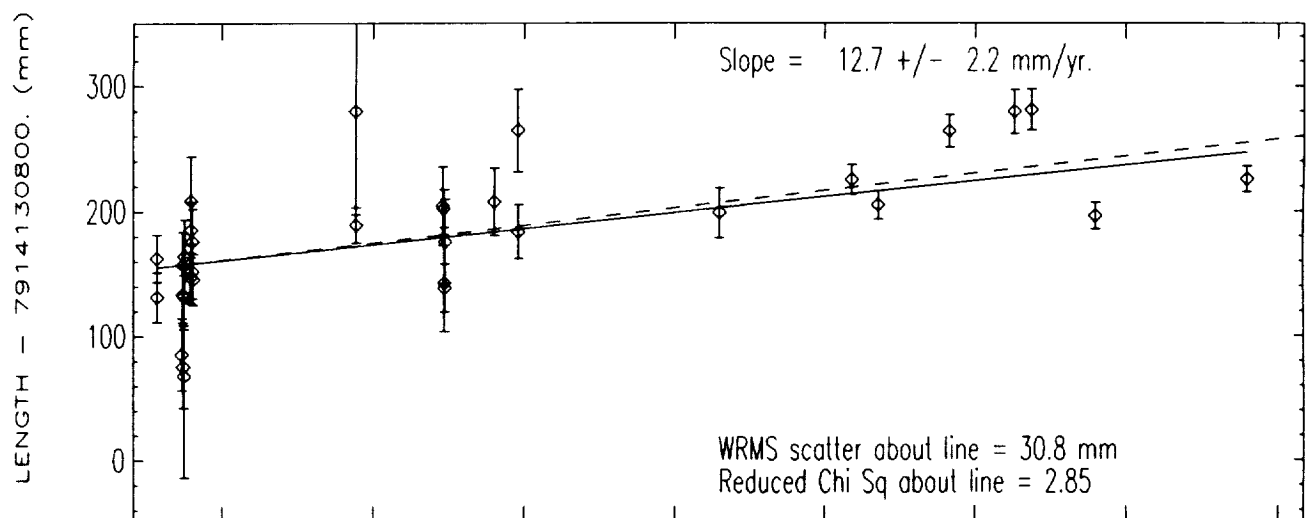
5 Observations



ONSALA60 TO OVRO 130

(Length = 7914 km)

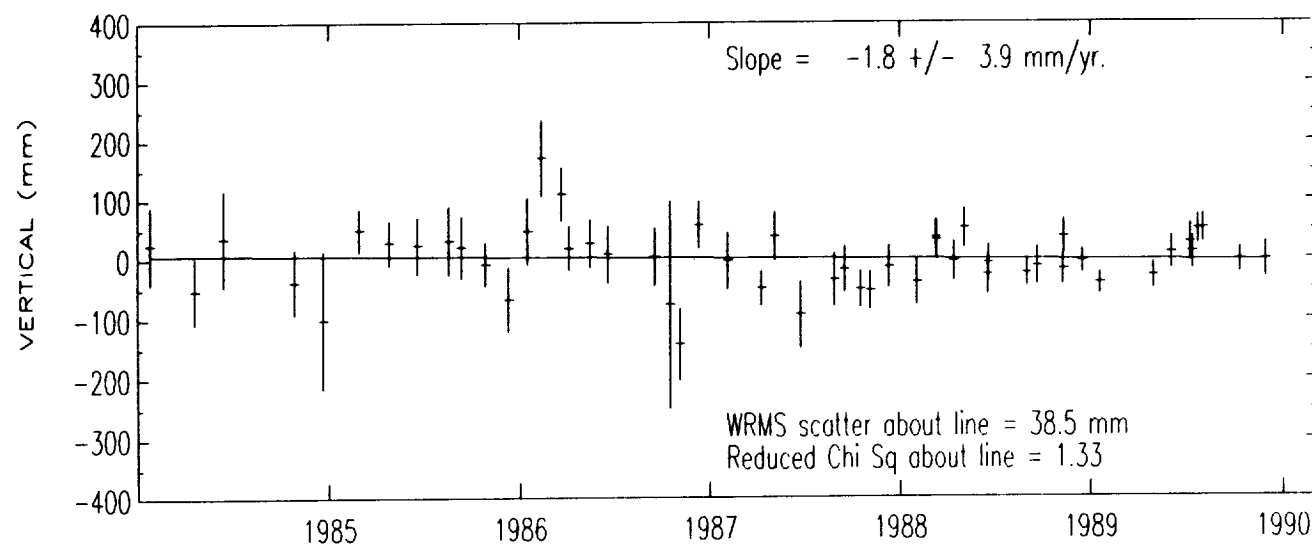
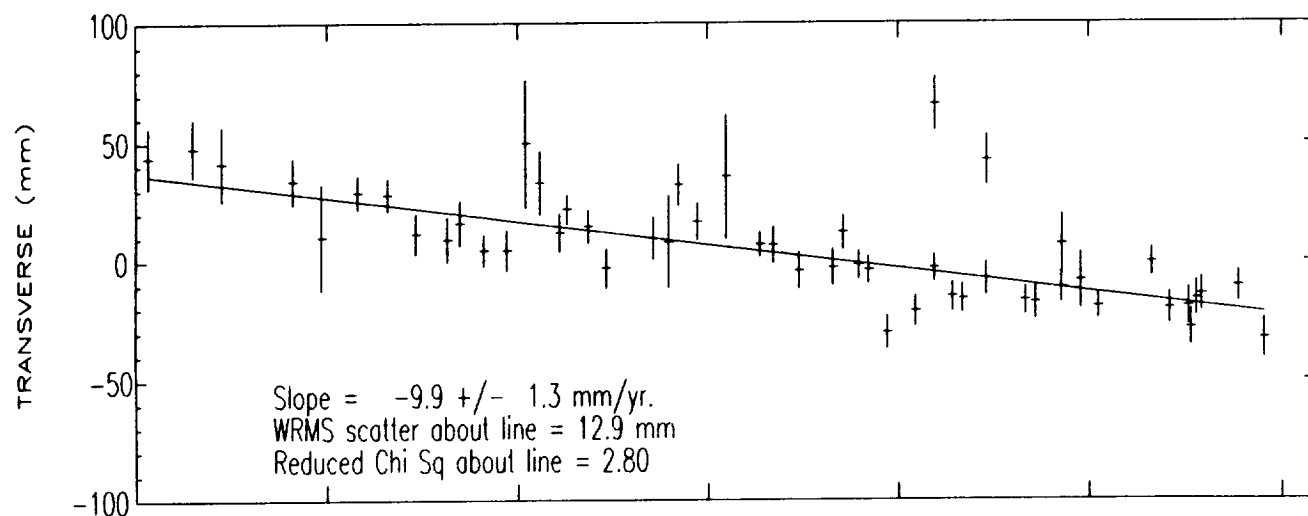
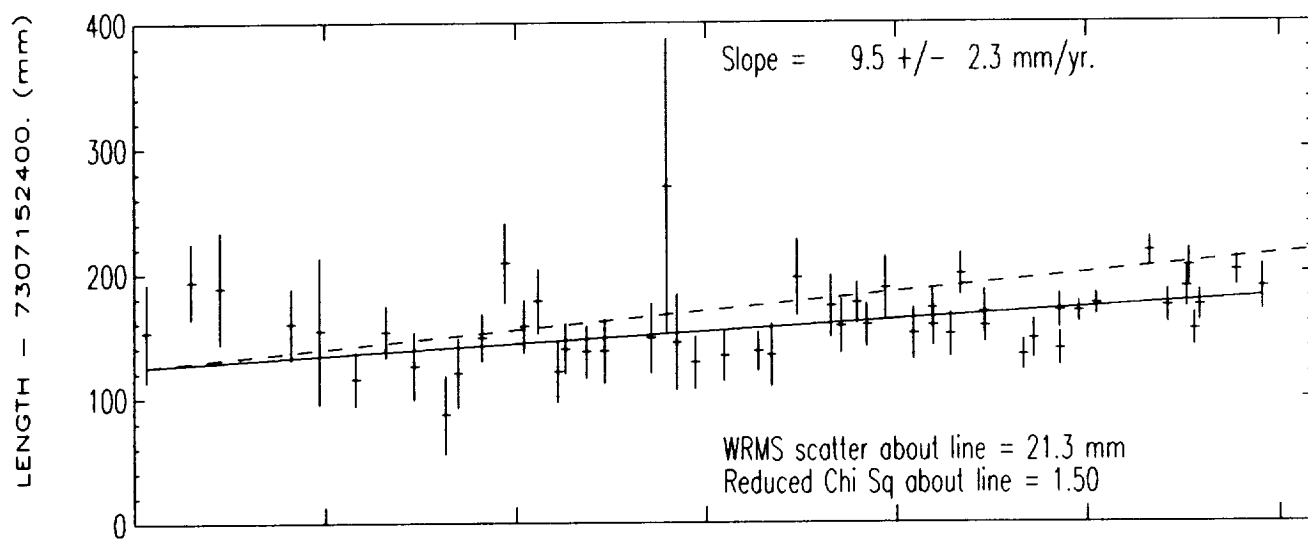
33 Observations



ONSALA60 TO RICHMOND

(Length = 7307 km)

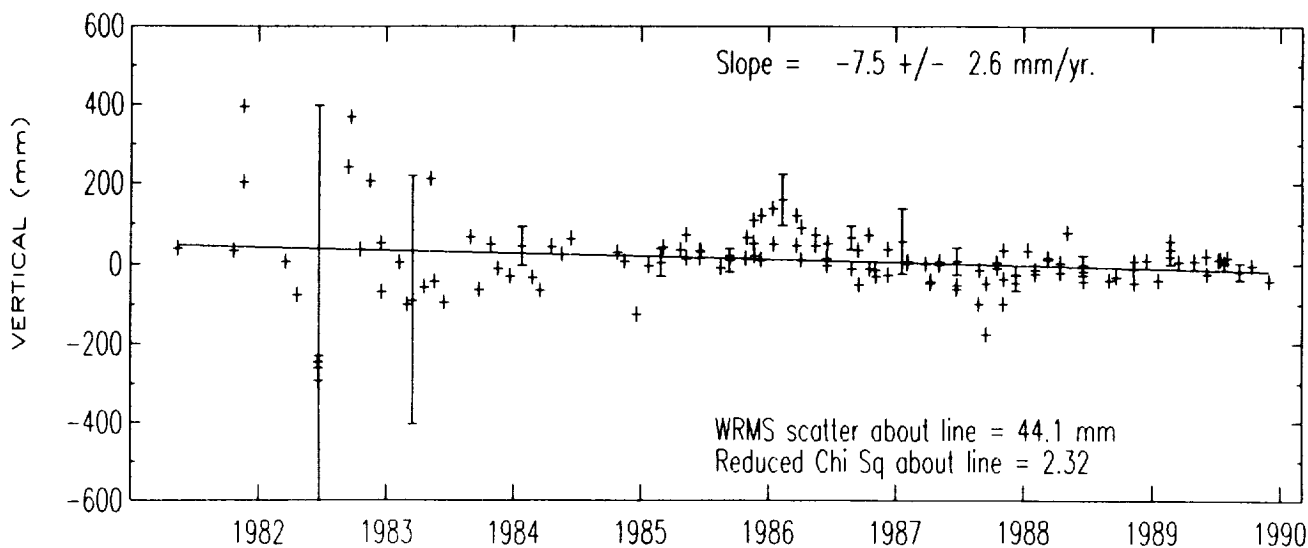
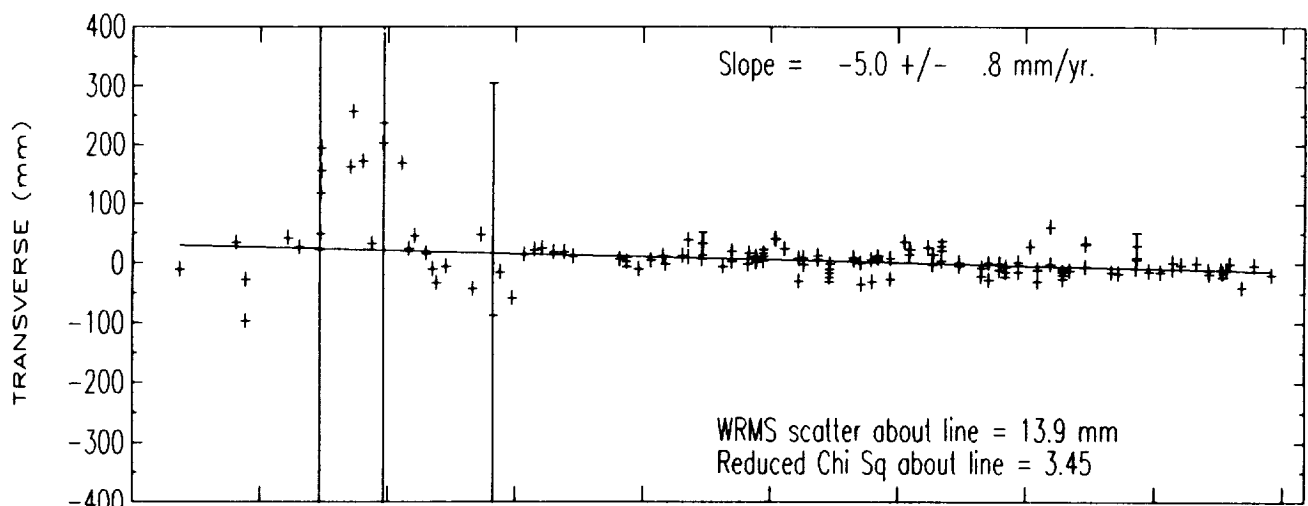
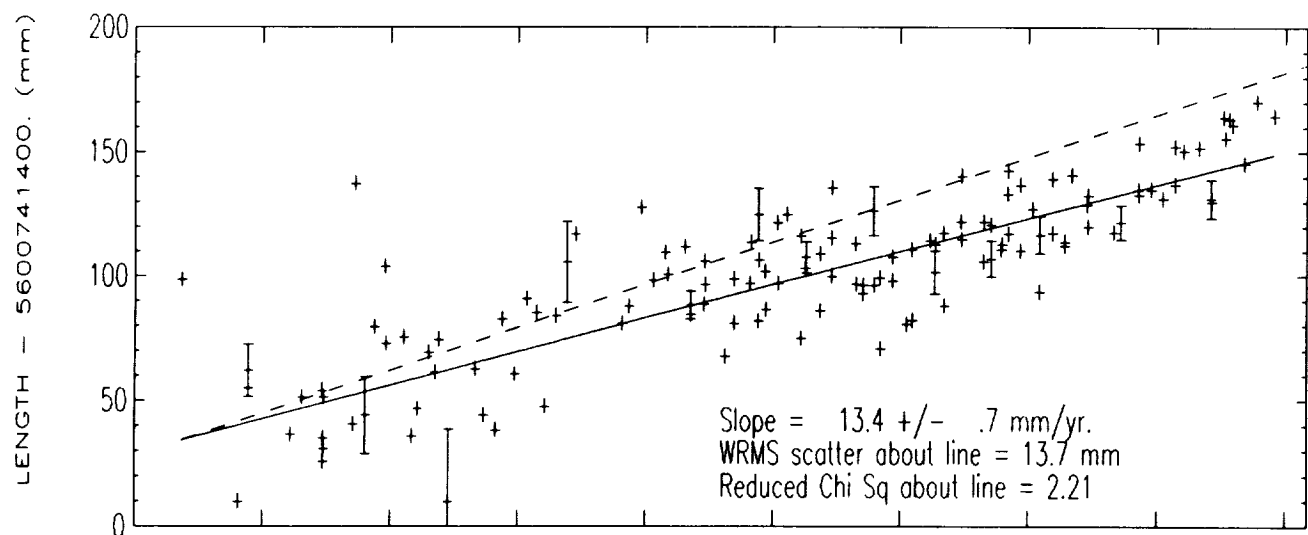
52 Observations



ONSALA60 TO WESTFORD

(Length = 5600 km)

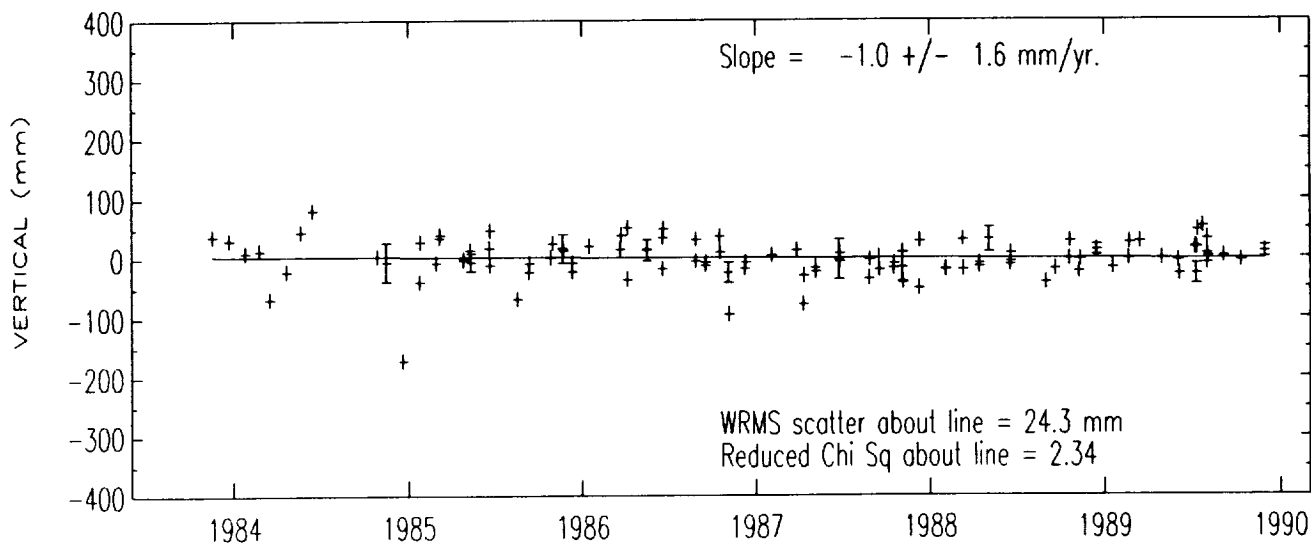
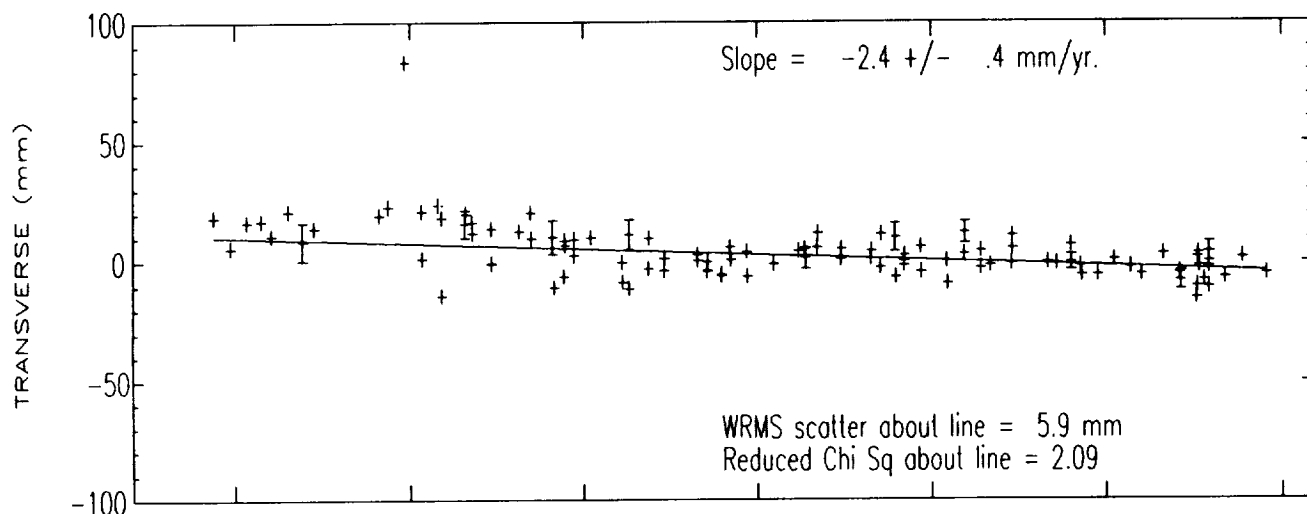
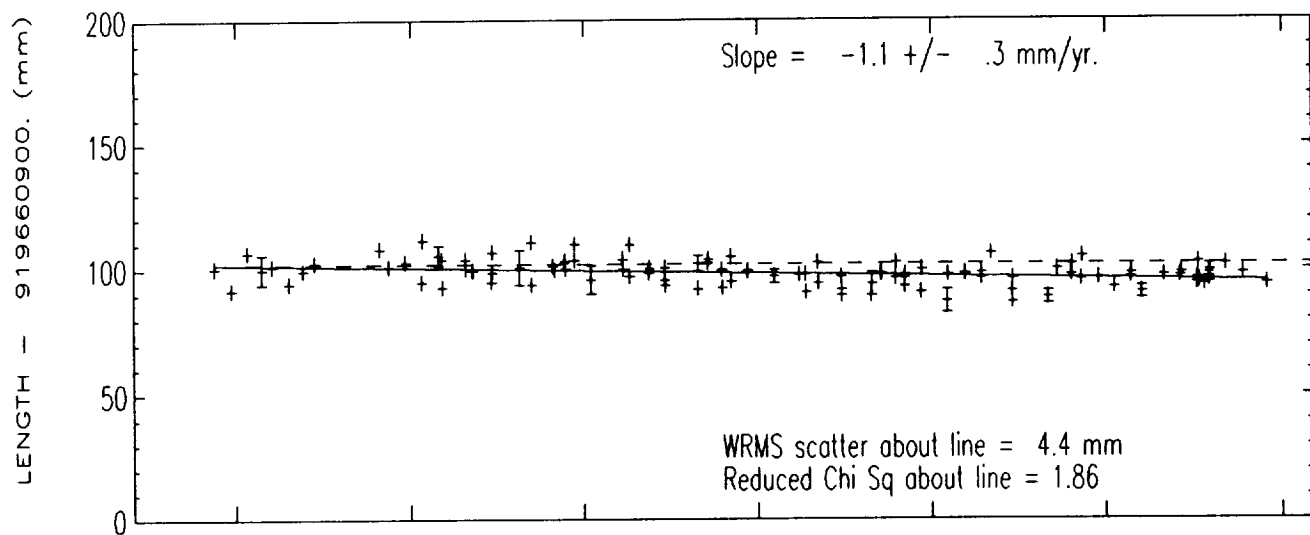
132 Observations



ONSALA60 TO WETTZELL

(Length = 919 km)

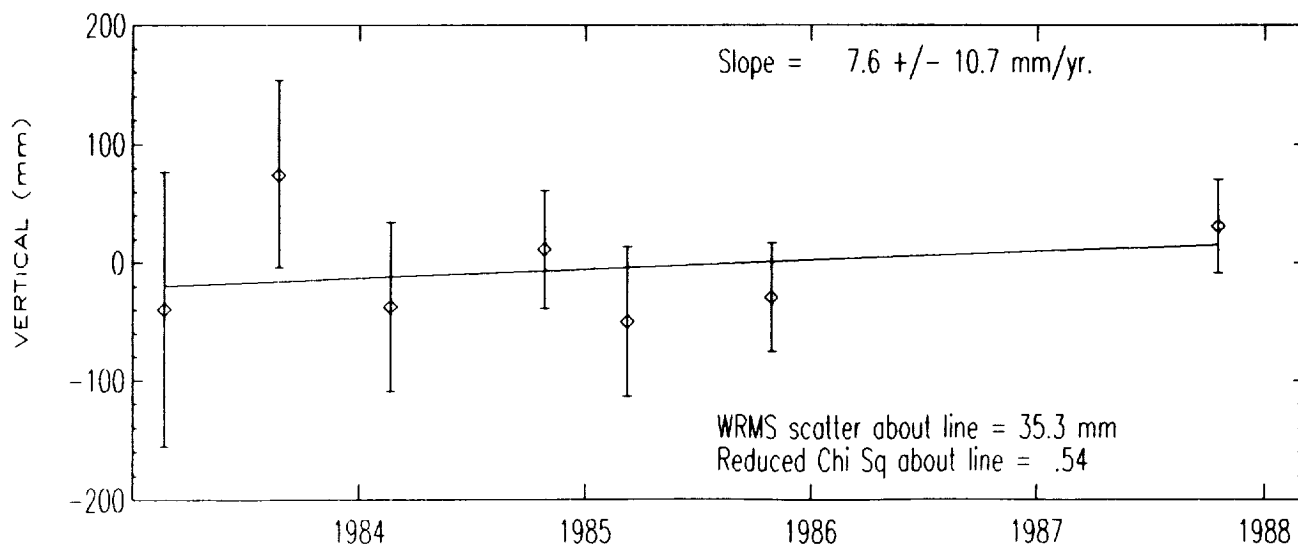
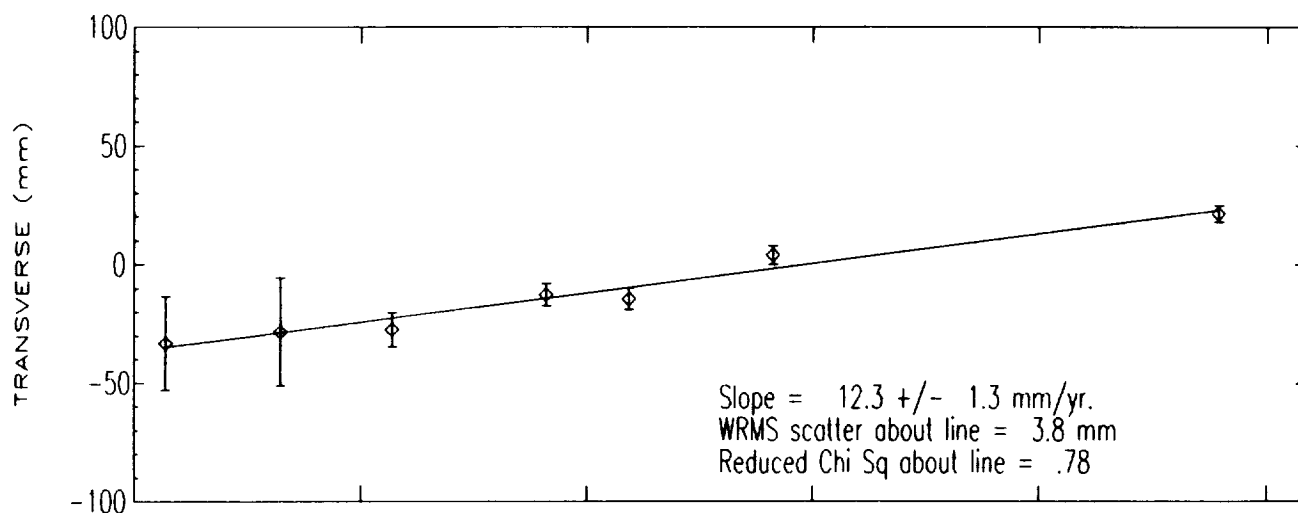
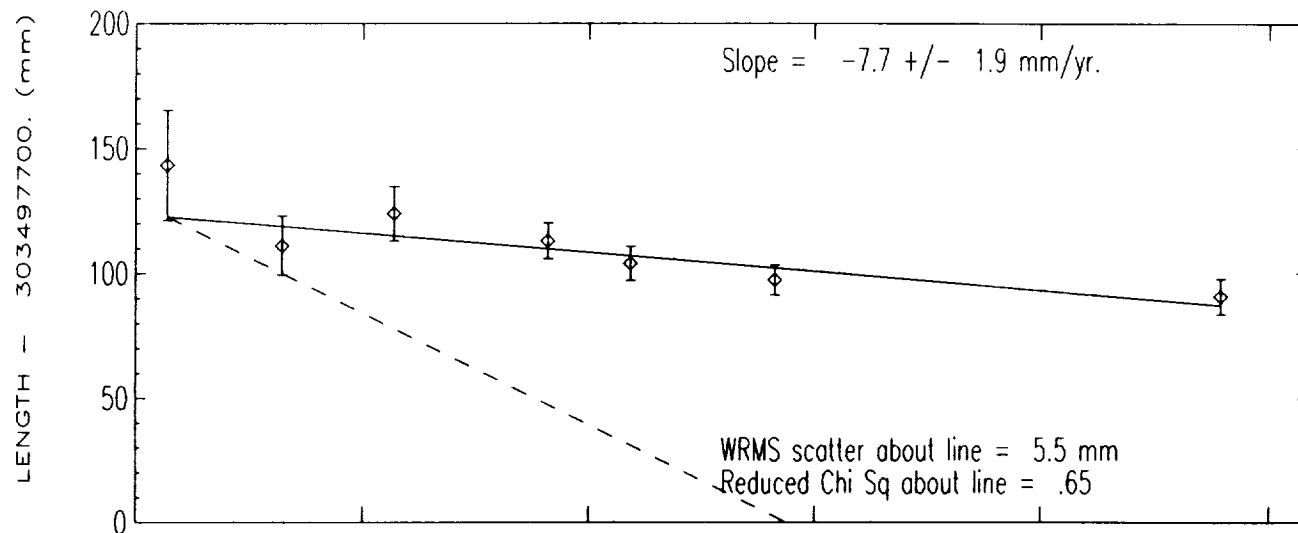
110 Observations



OVRO 130 TO PBLOSSOM

(Length = 303 km)

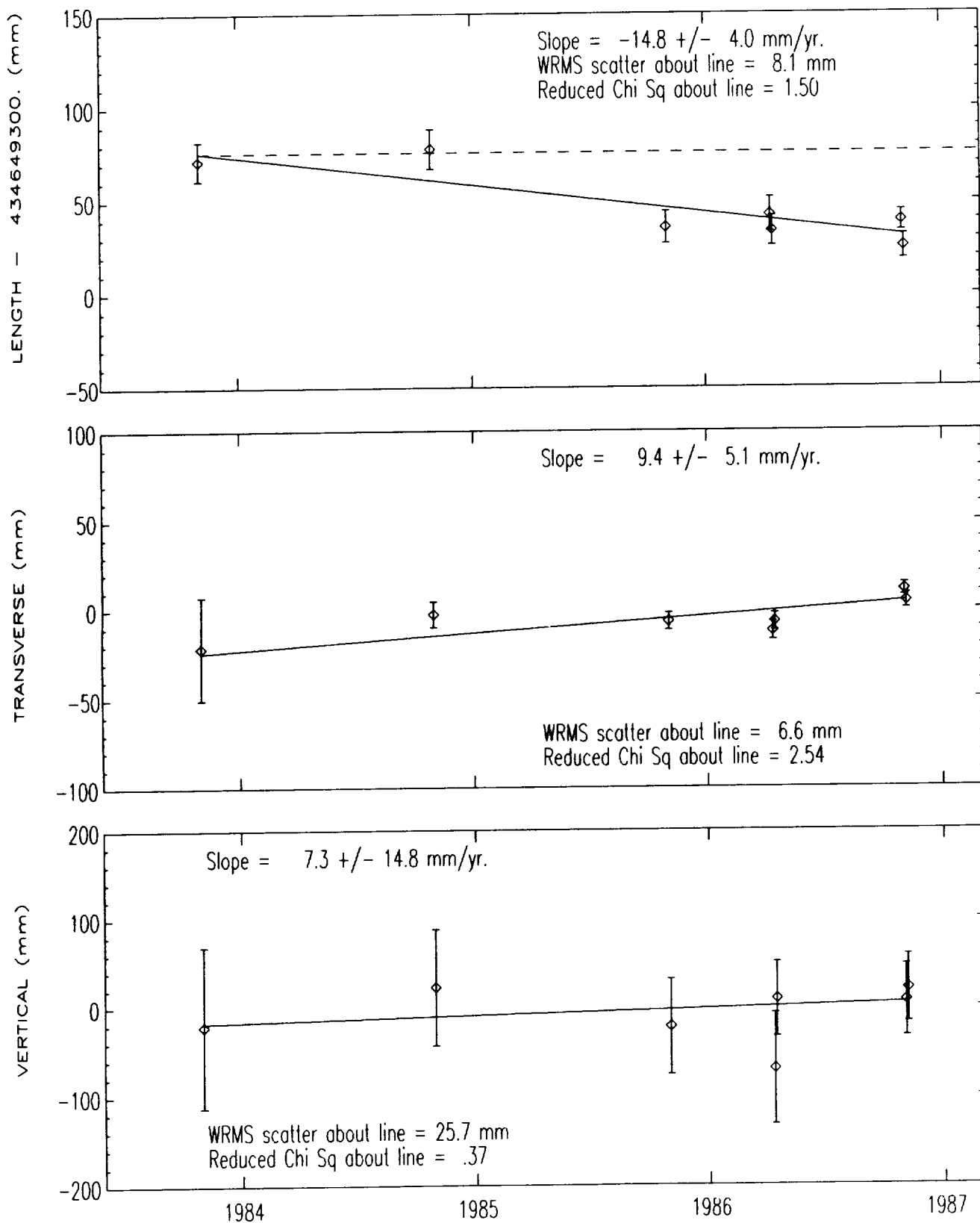
7 Observations



OVRO 130 TO PINFLATS

(Length = 434 km)

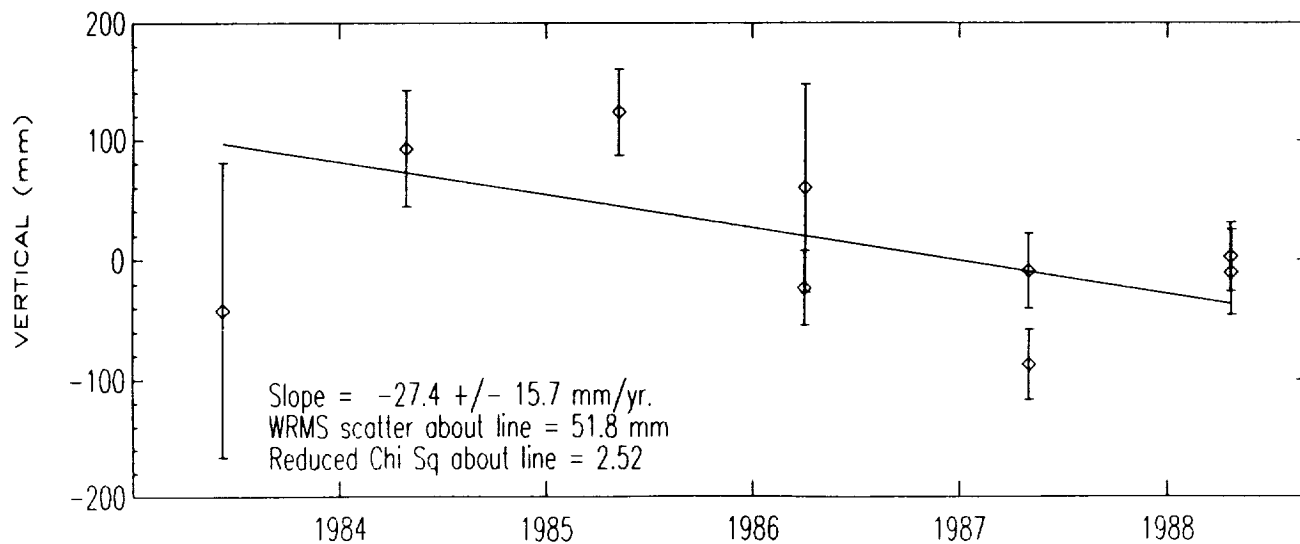
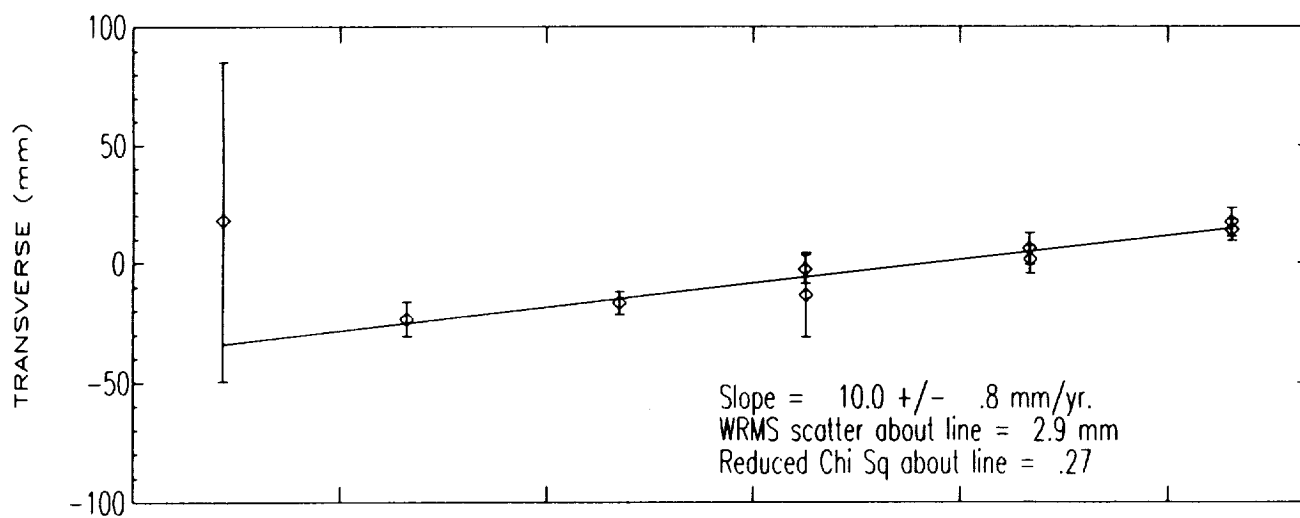
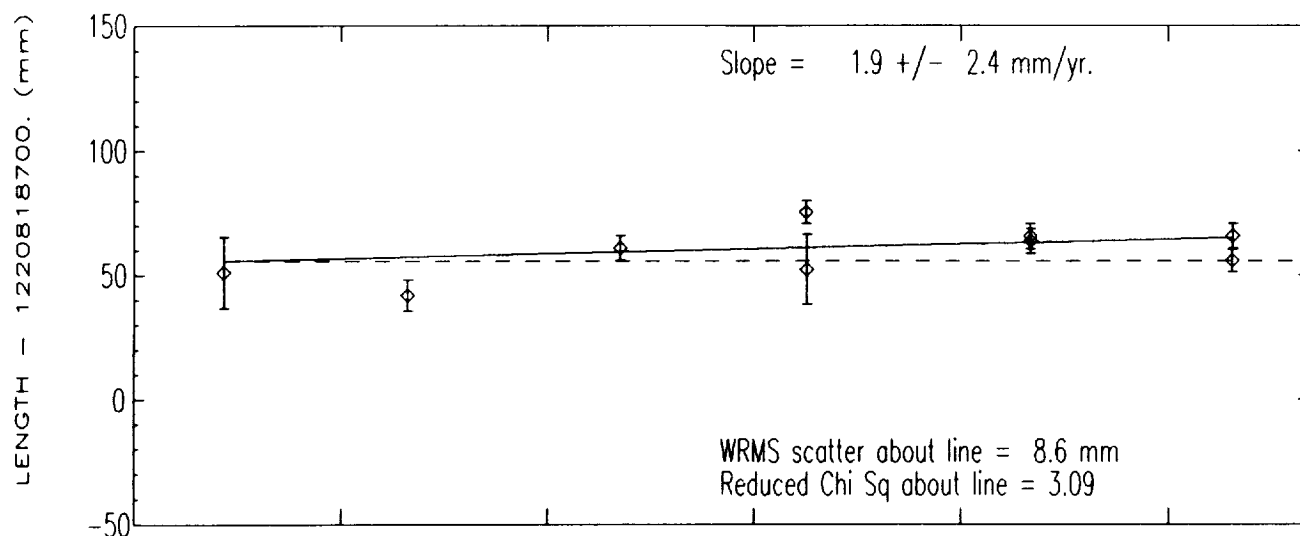
7 Observations



OVRO 130 TO PLATTVIL

(Length = 1220 km)

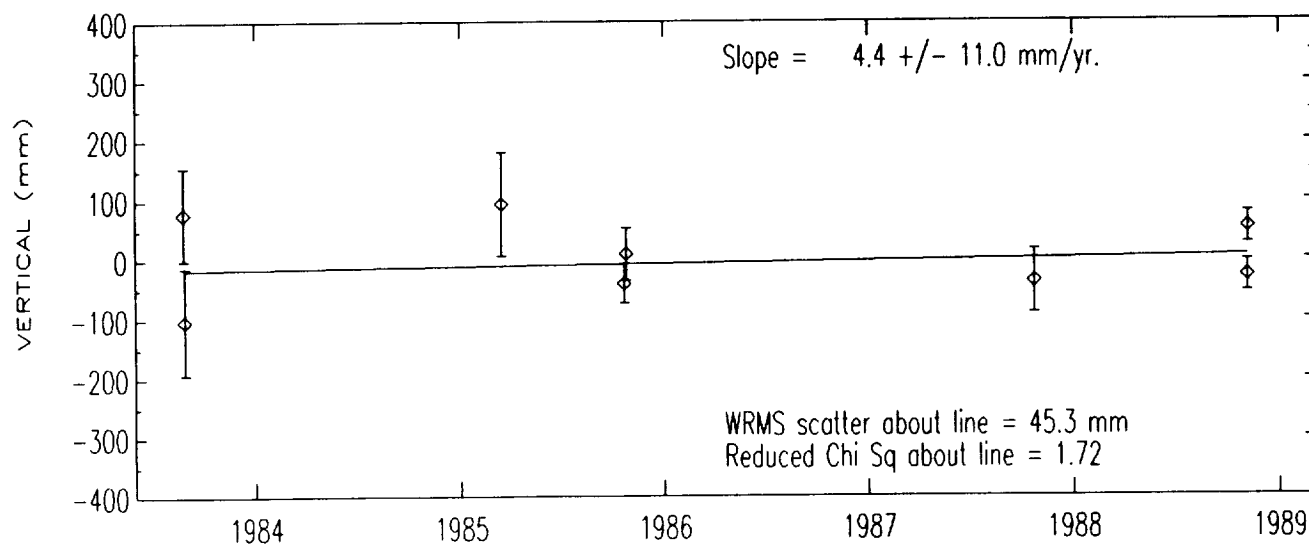
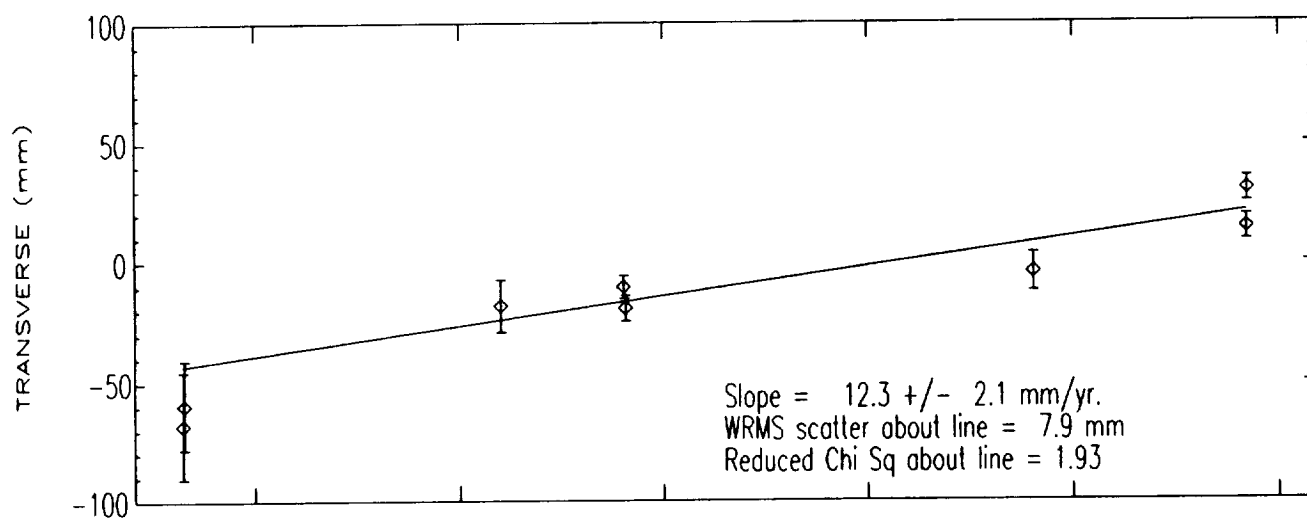
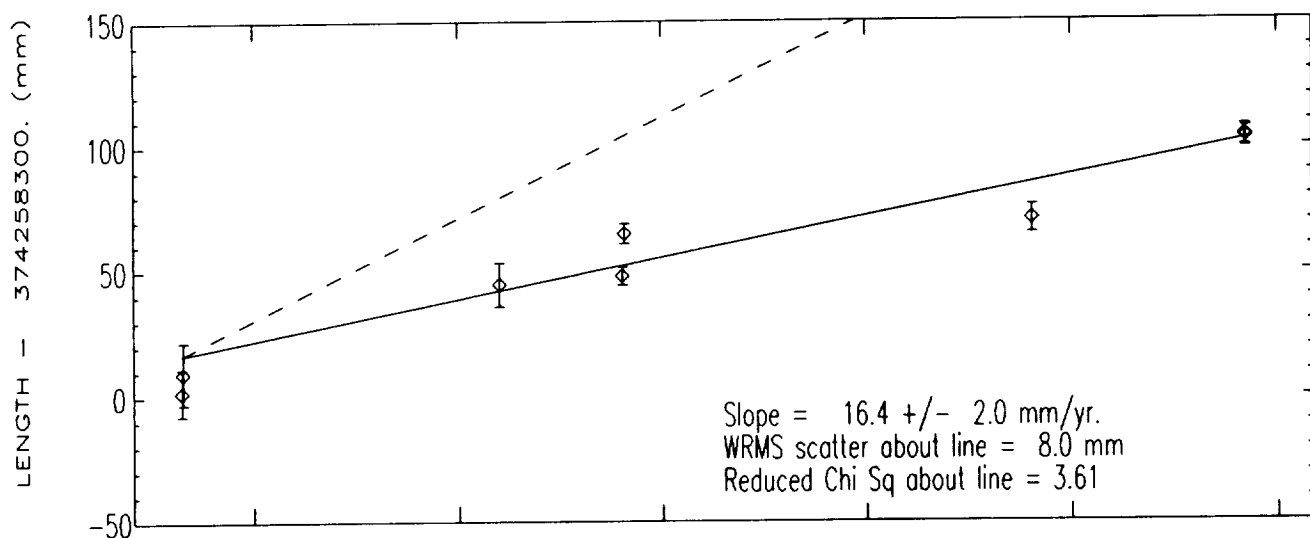
9 Observations



OVRO 130 TO PRESIDIO

(Length = 374 km)

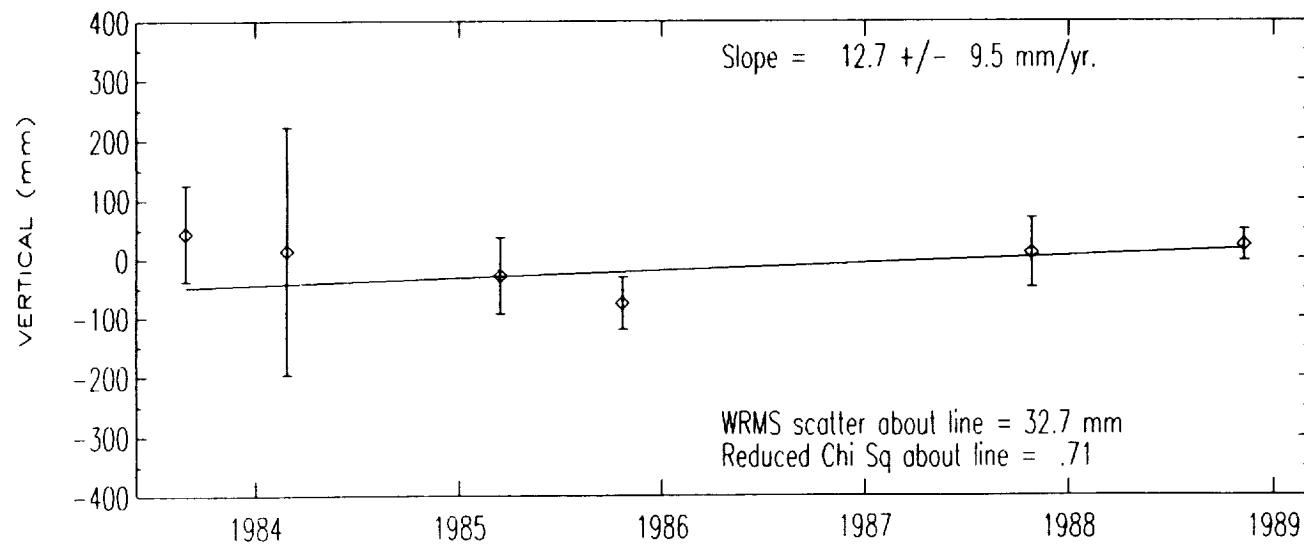
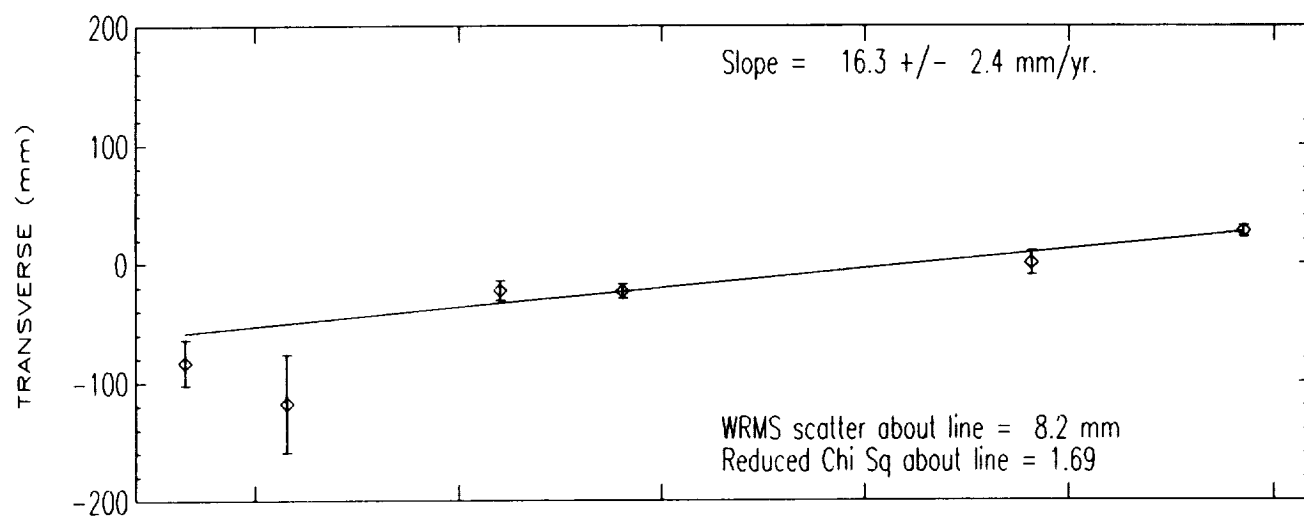
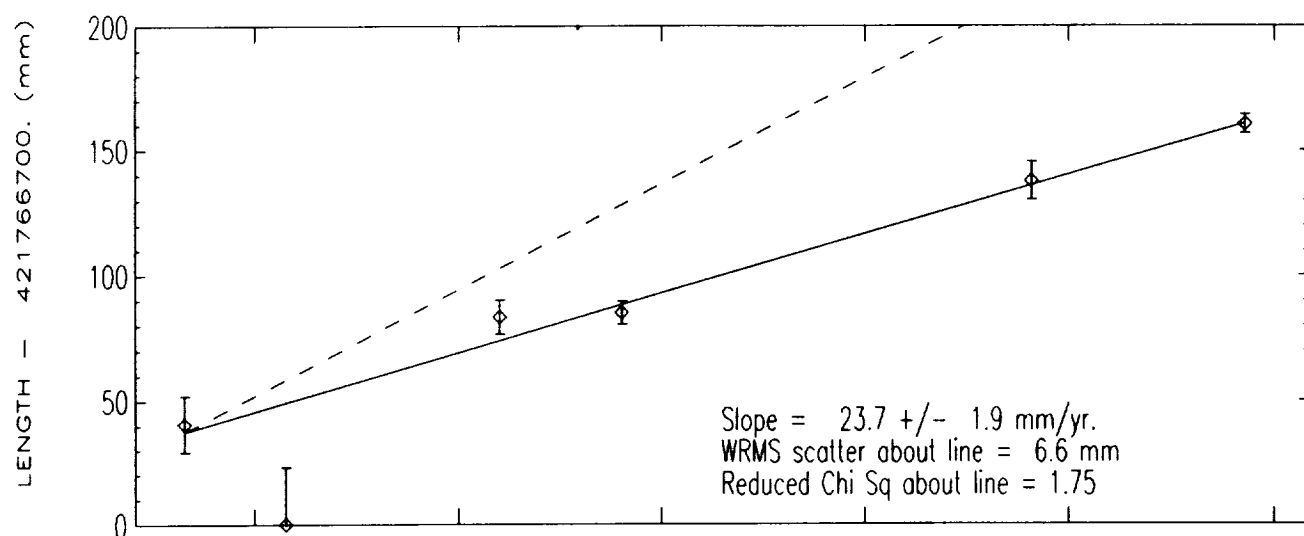
8 Observations



OVRO 130 TO PT REYES

(Length = 421 km)

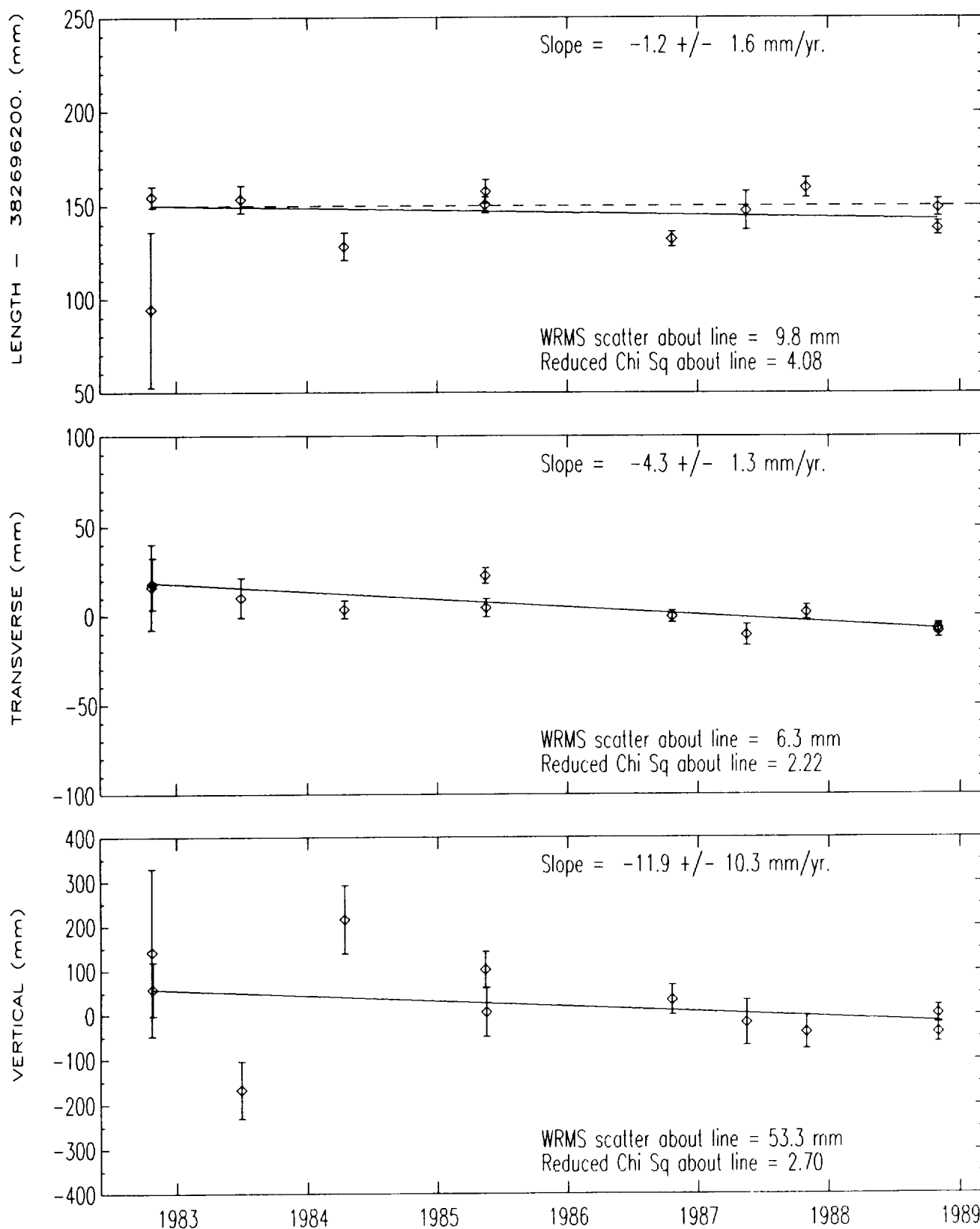
6 Observations



OVRO 130 TO QUINCY

(Length = 382 km)

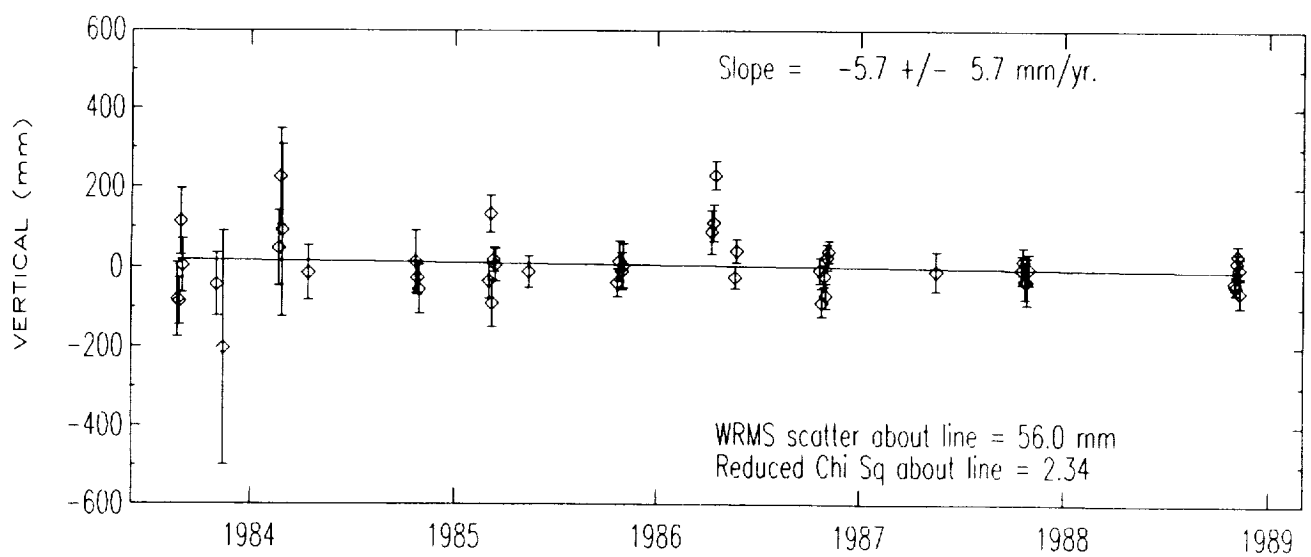
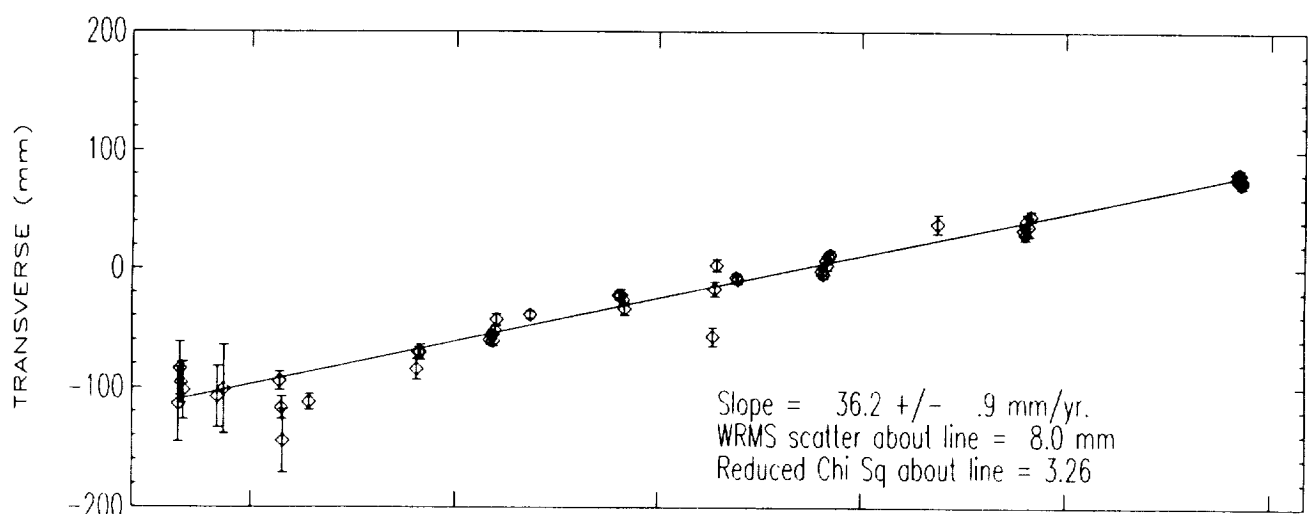
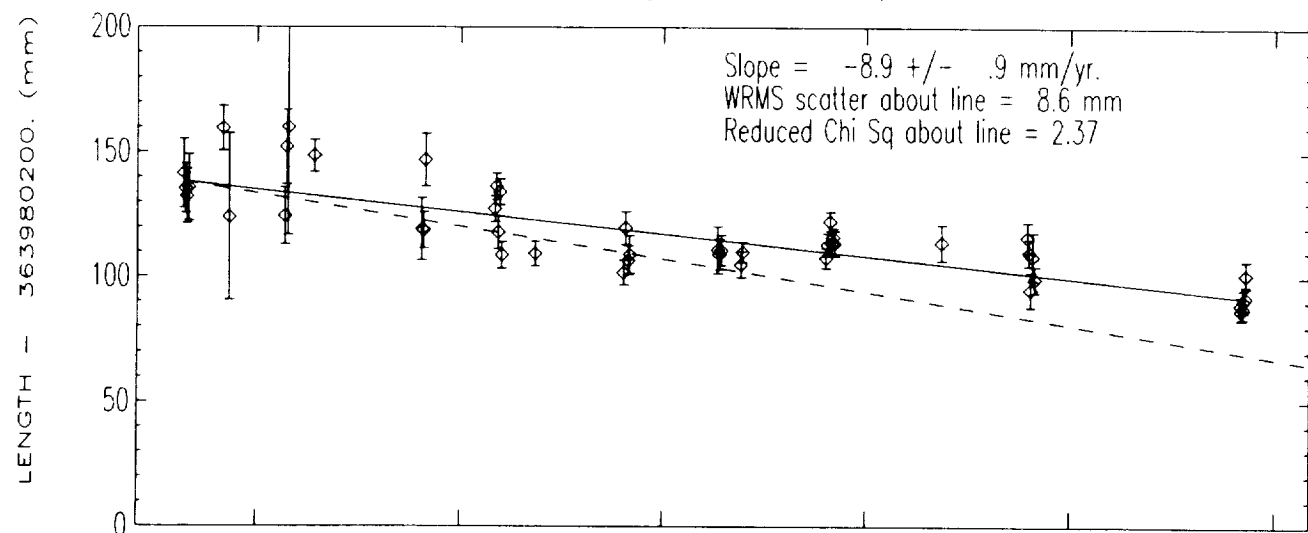
11 Observations



OVRO 130 TO VNDNBERG

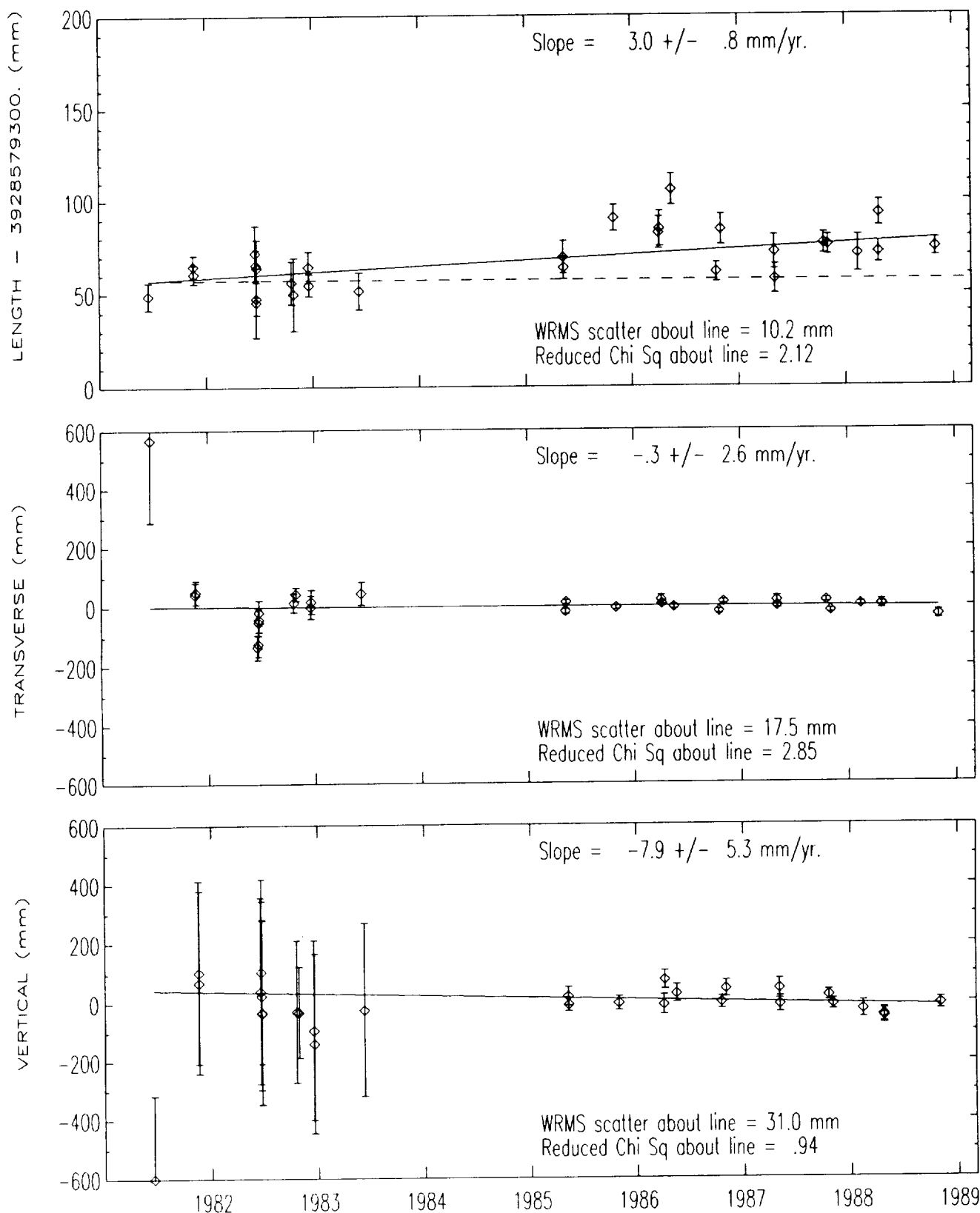
(Length = 363 km)

46 Observations



OVRO 130 TO WESTFORD (Length = 3928 km)

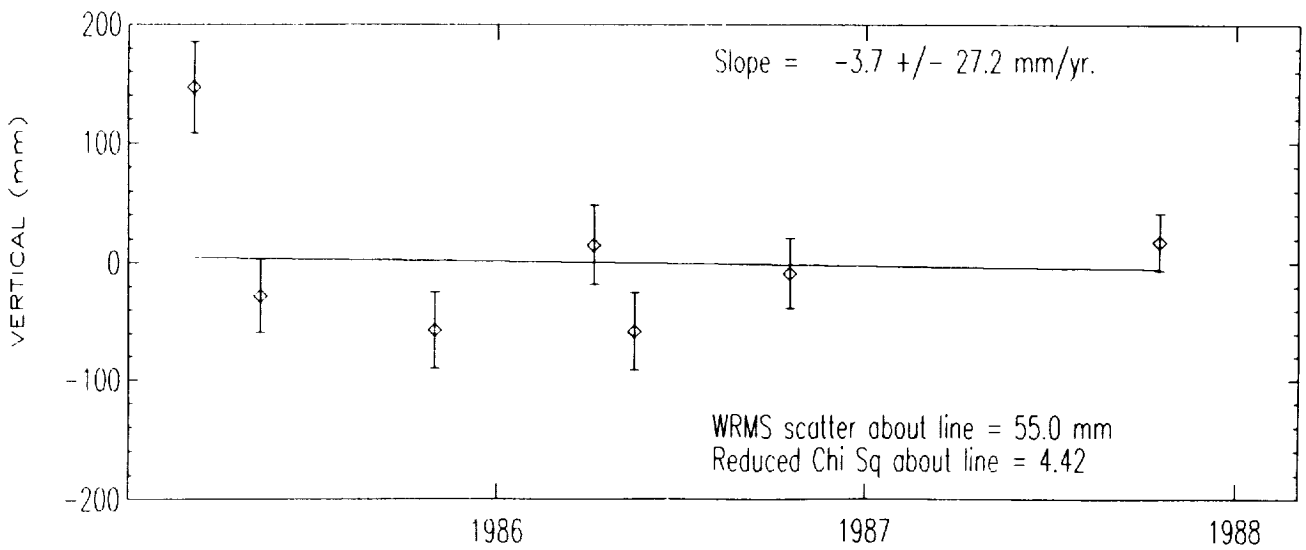
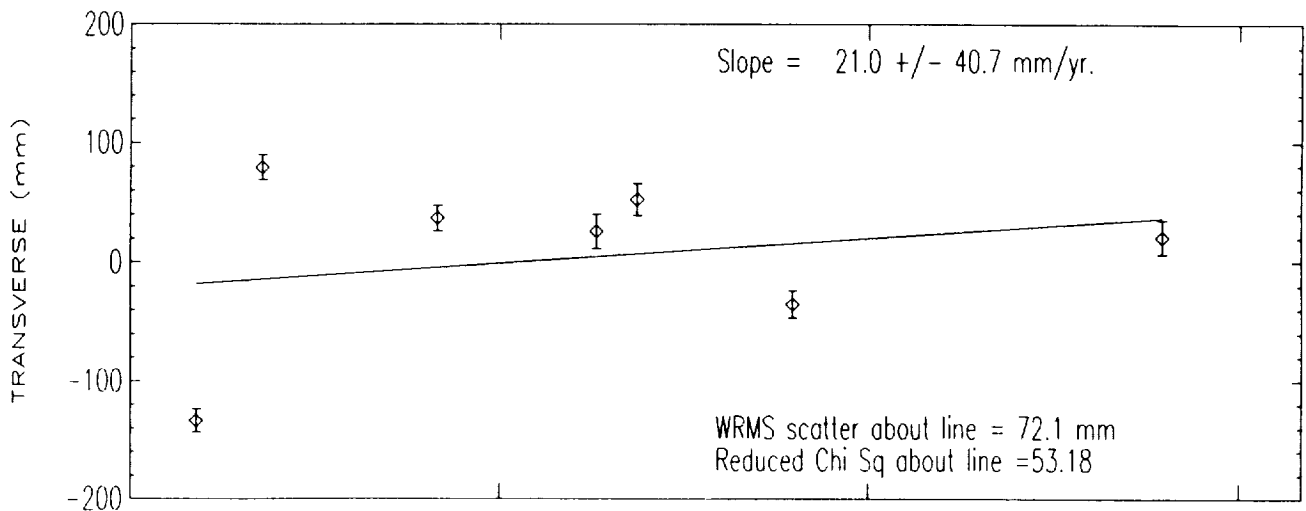
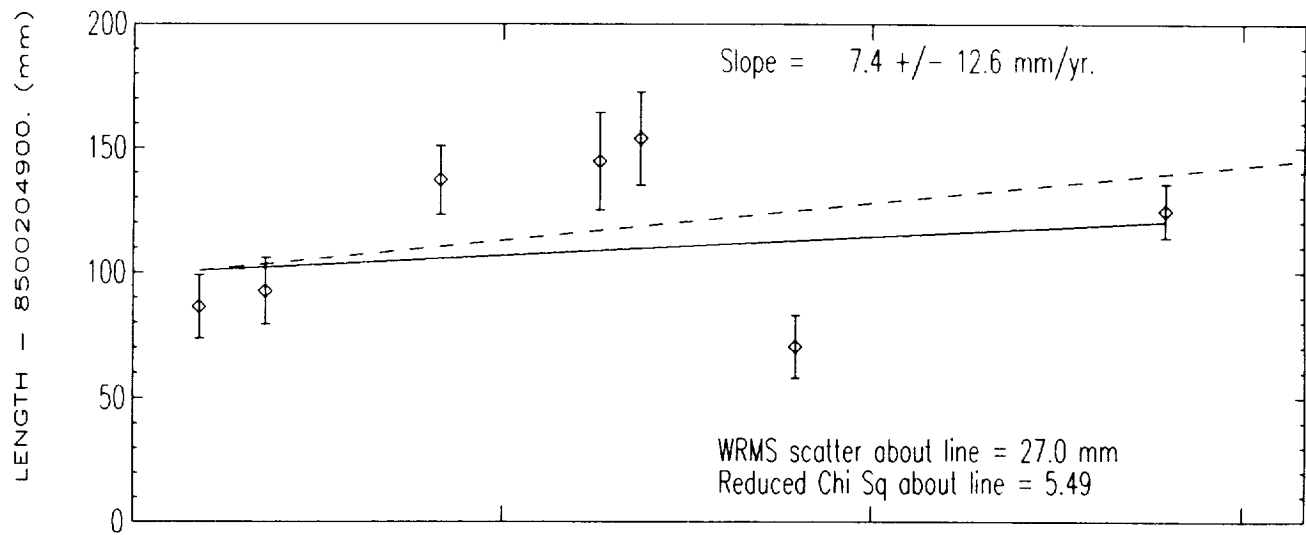
29 Observations



OVRO 130 TO WETTZELL

(Length = 8500 km)

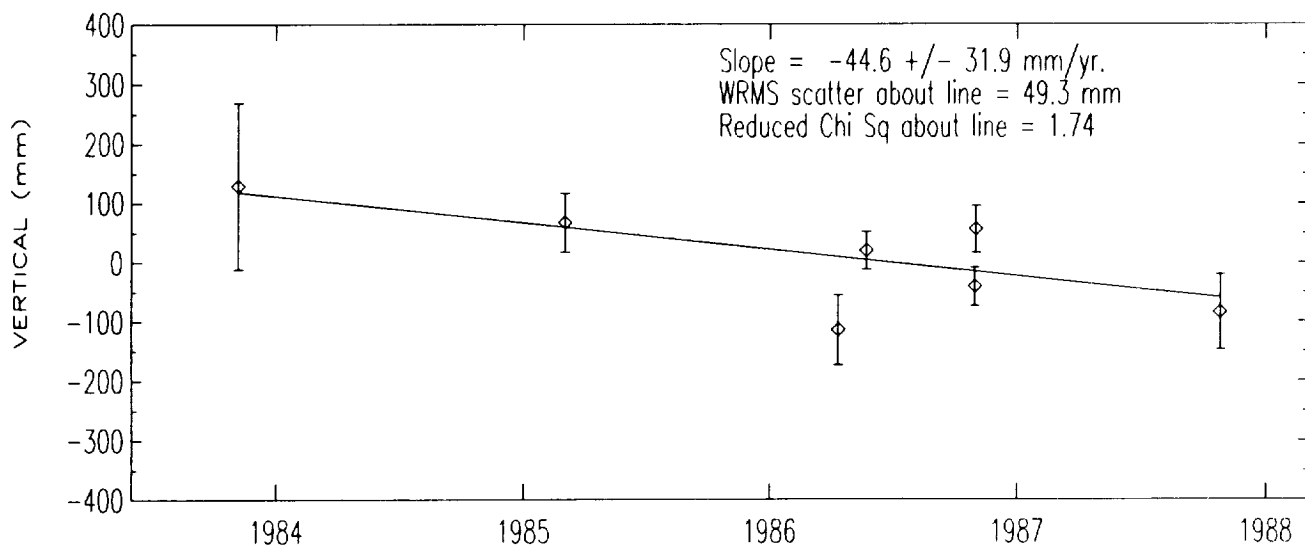
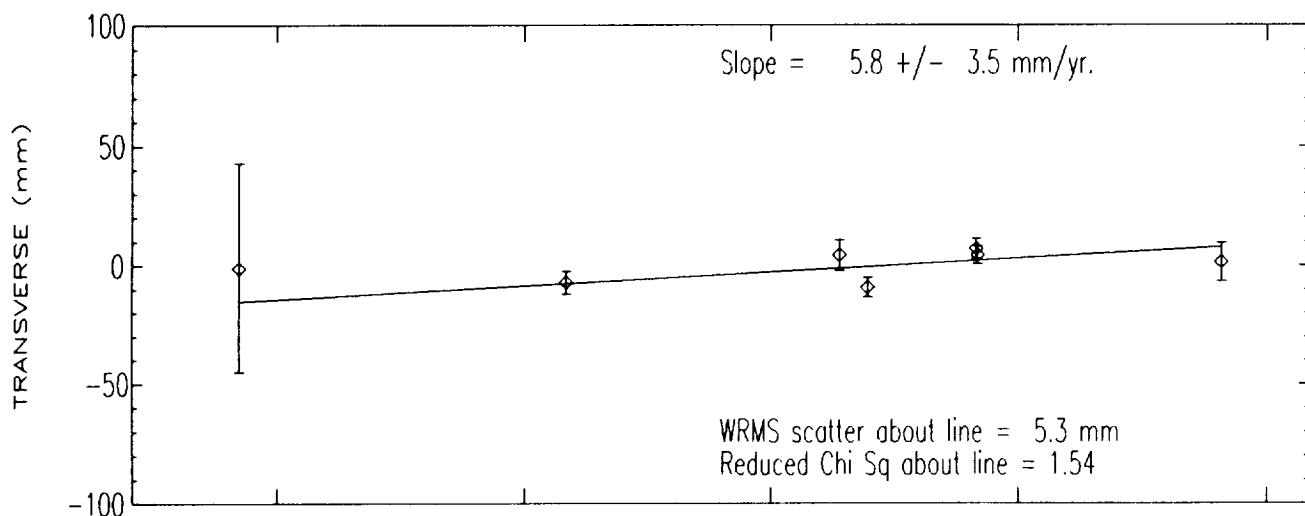
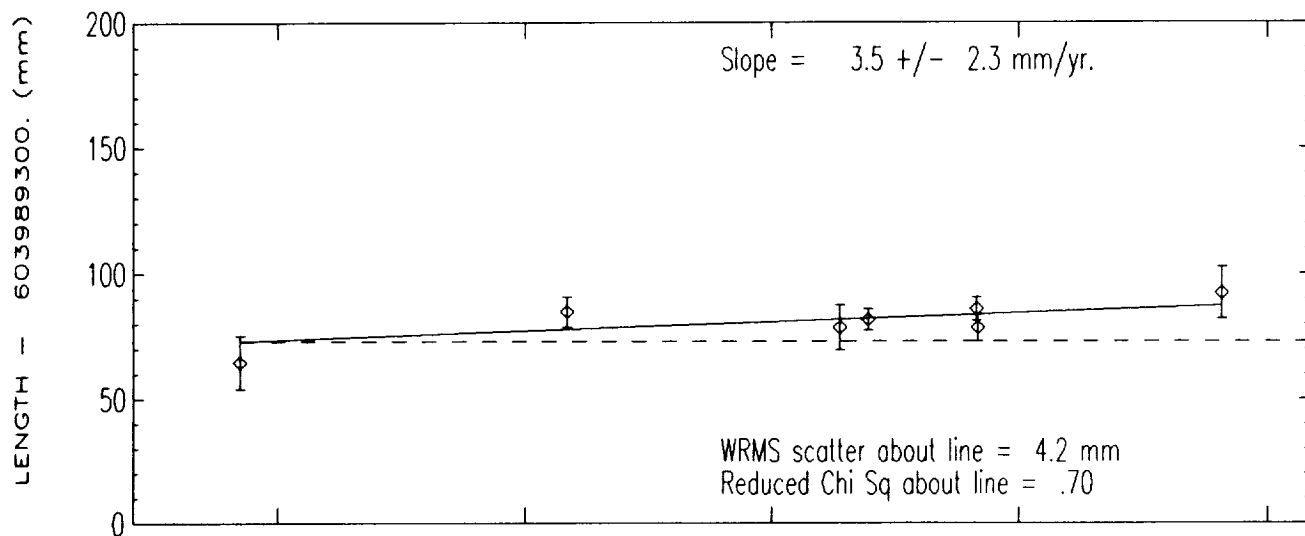
7 Observations



OVRO 130 TO YUMA

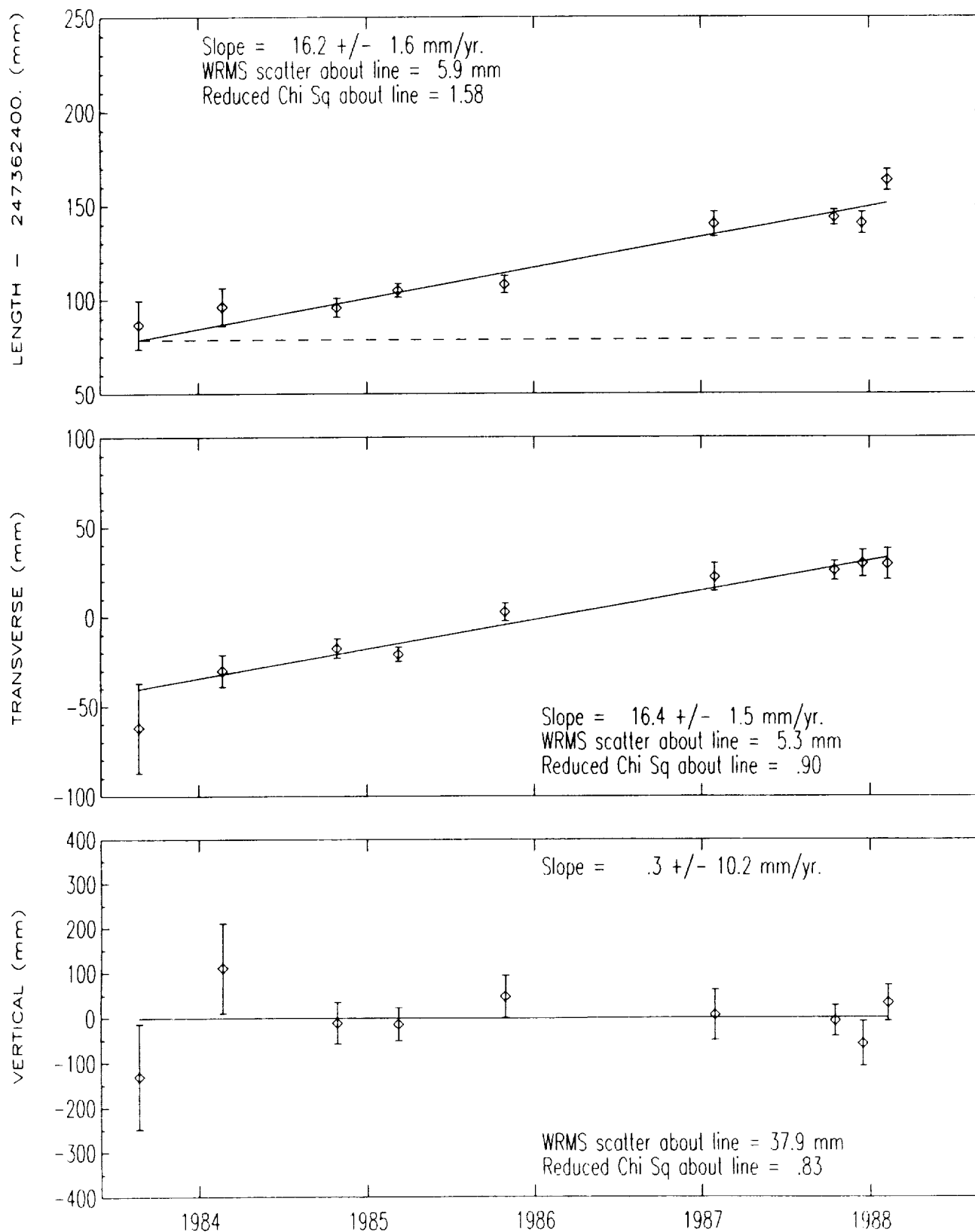
(Length = 603 km)

7 Observations



PBLOSSOM TO VNDNBERG (Length = 247 km)

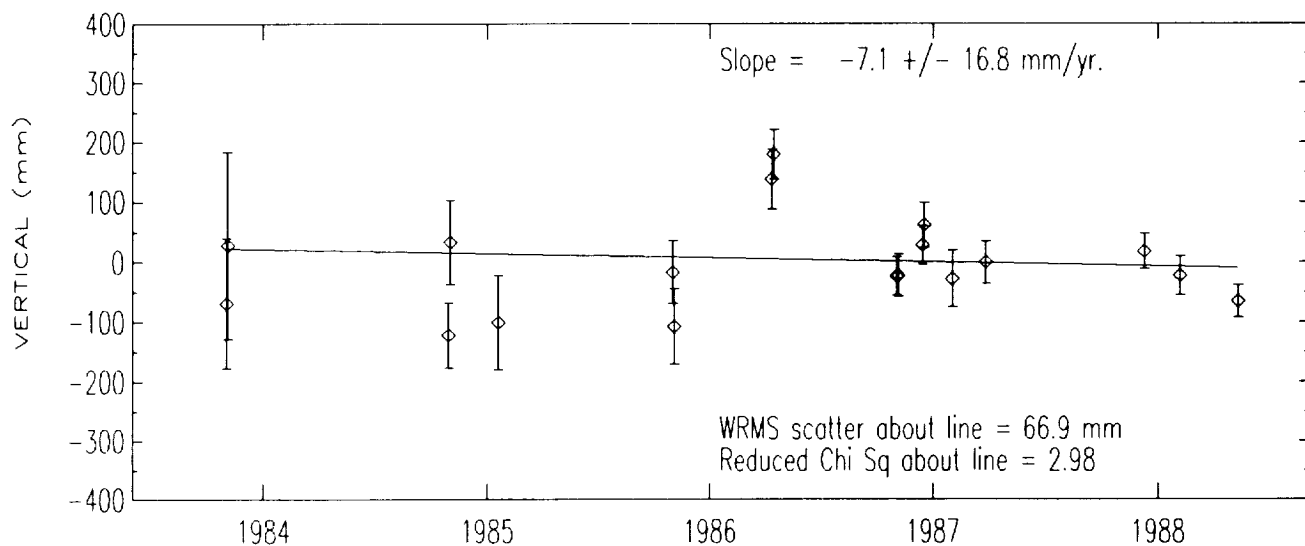
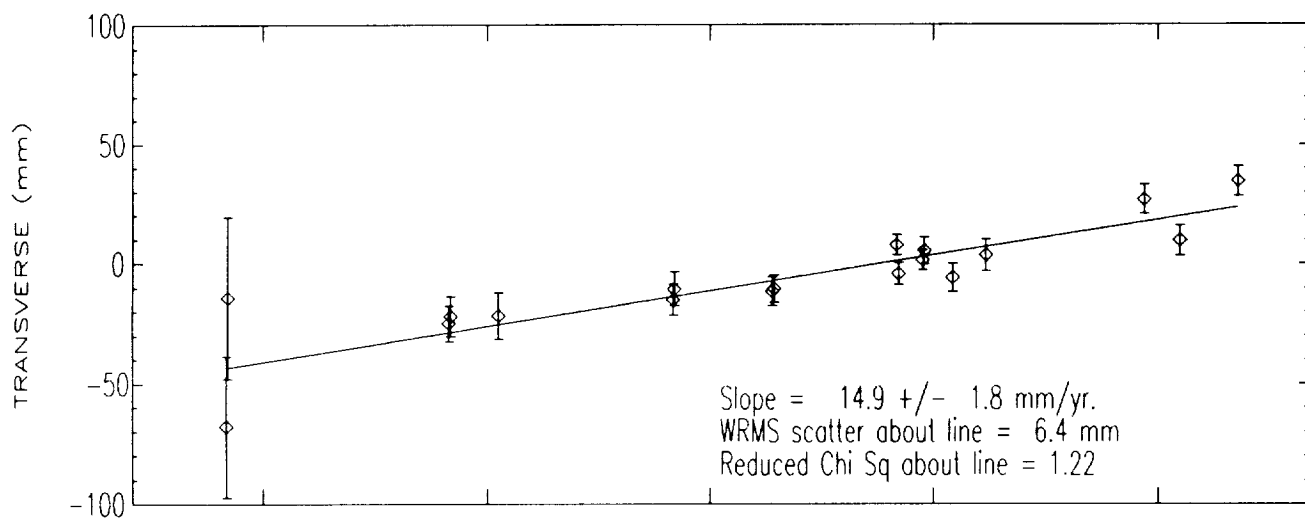
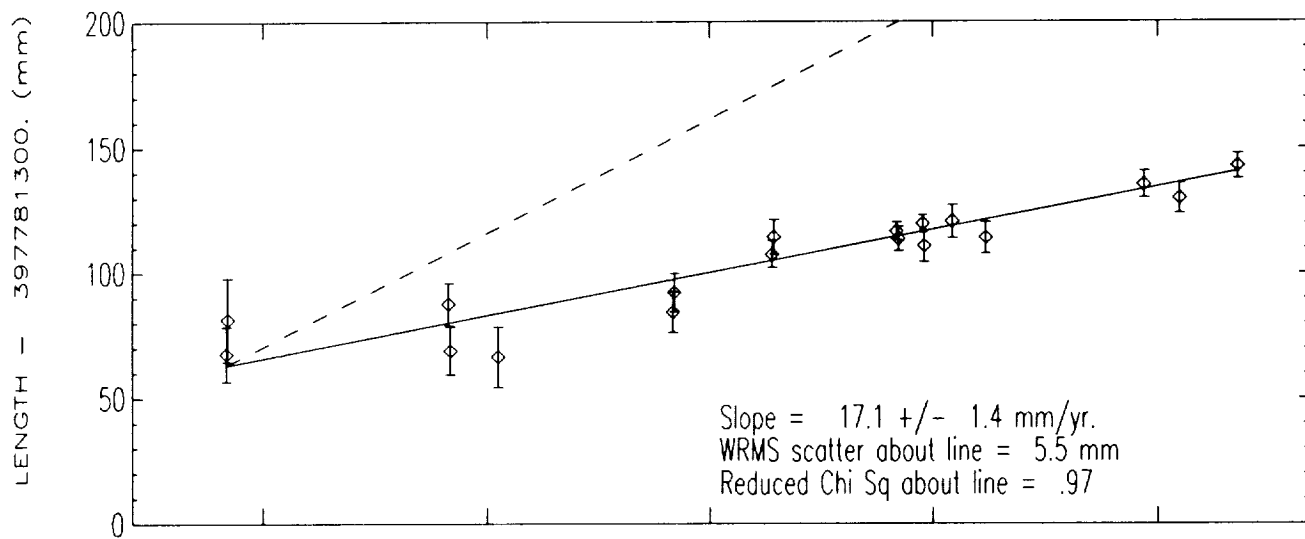
9 Observations



PINFLATS TO VNDNBERG

(Length = 397 km)

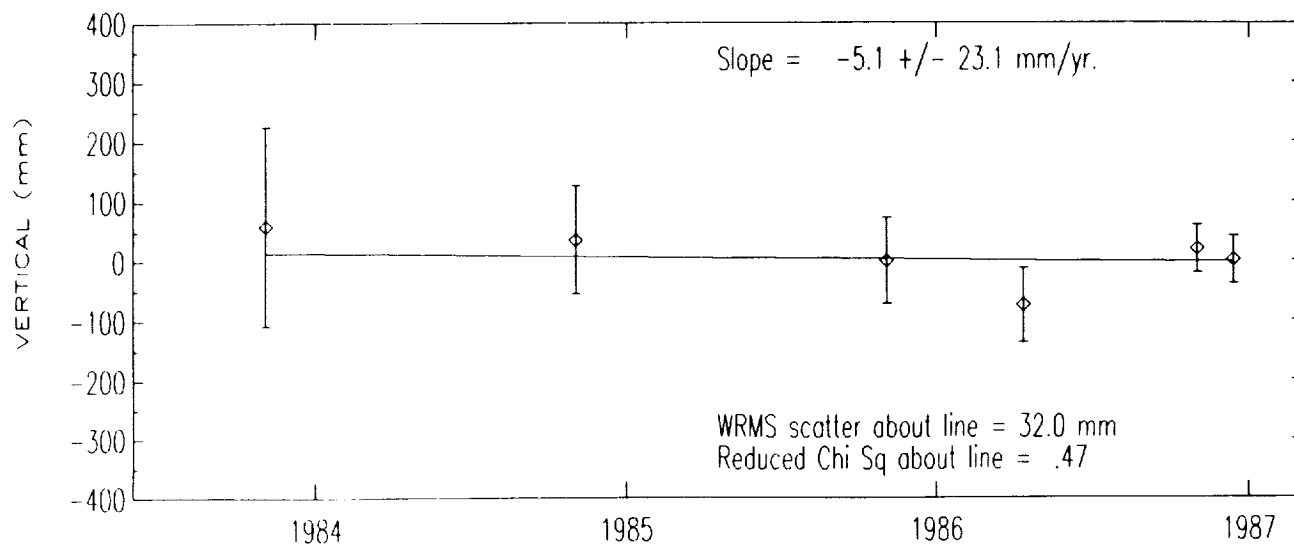
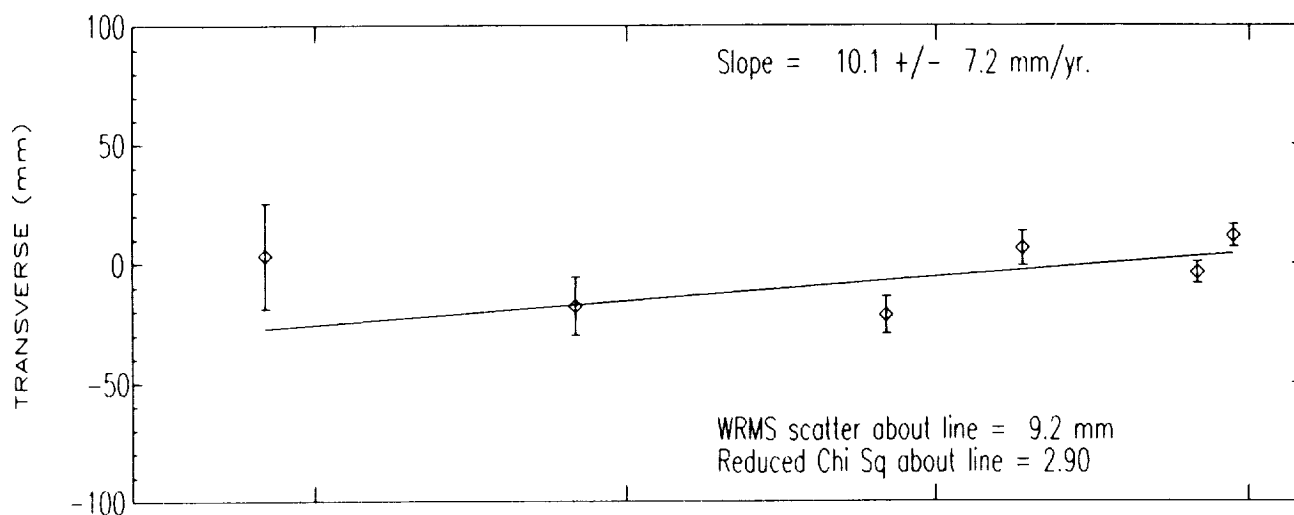
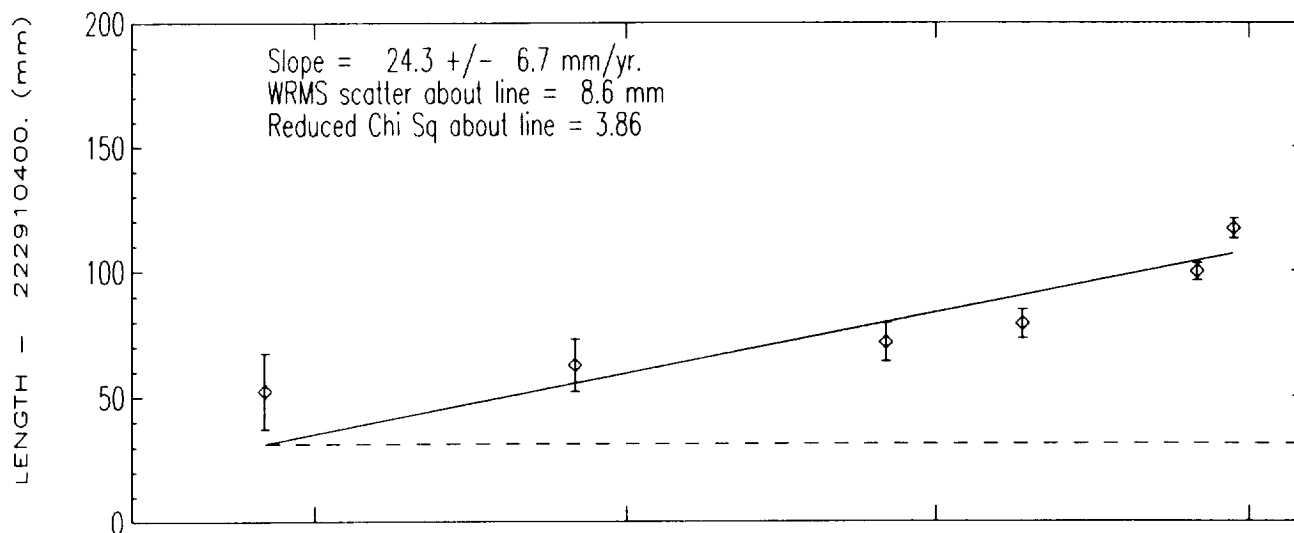
18 Observations



PINFLATS TO YUMA

(Length = 222 km)

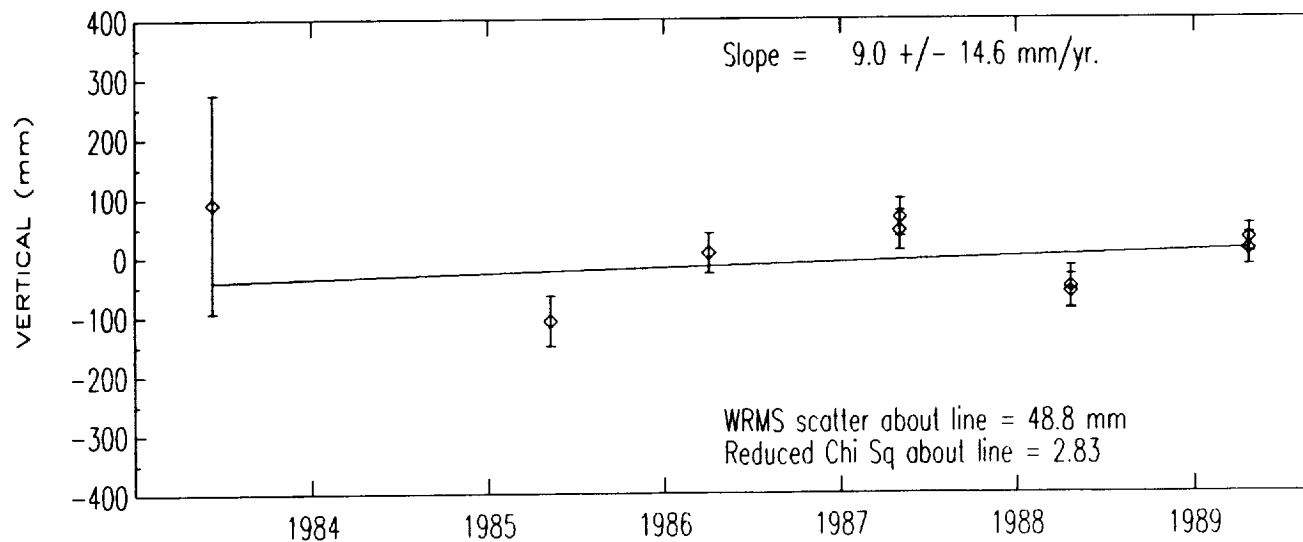
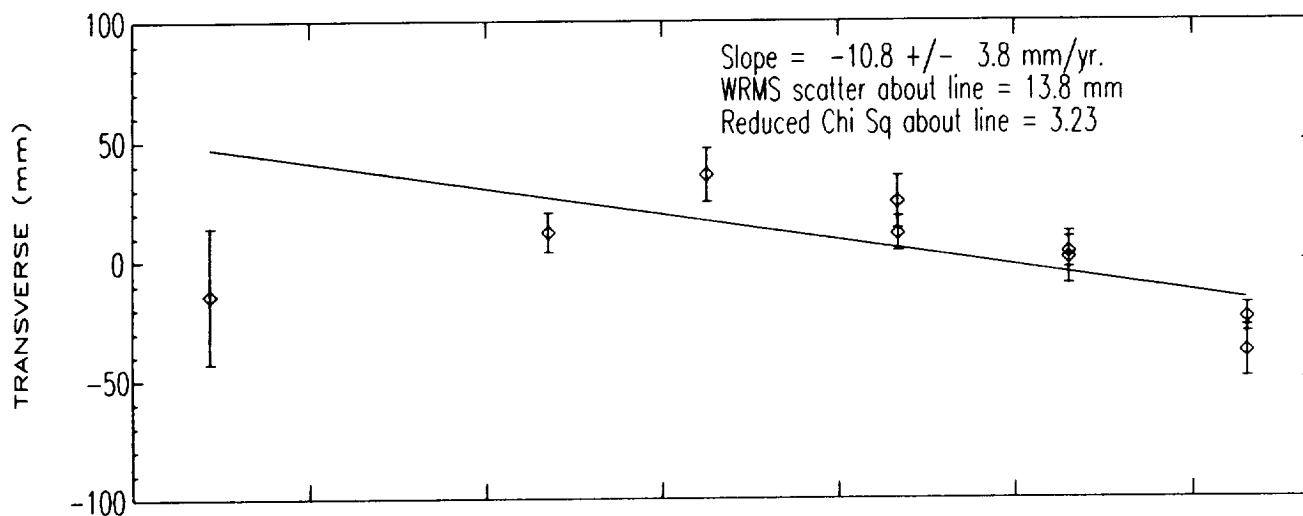
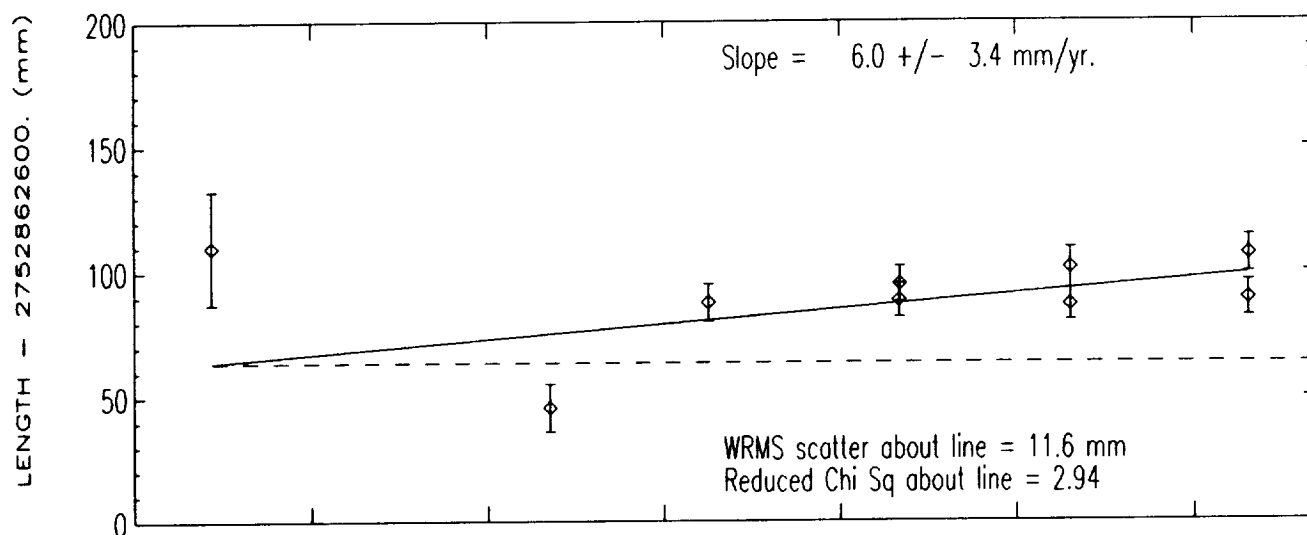
6 Observations



PLATTVIL TO WESTFORD

(Length = 2752 km)

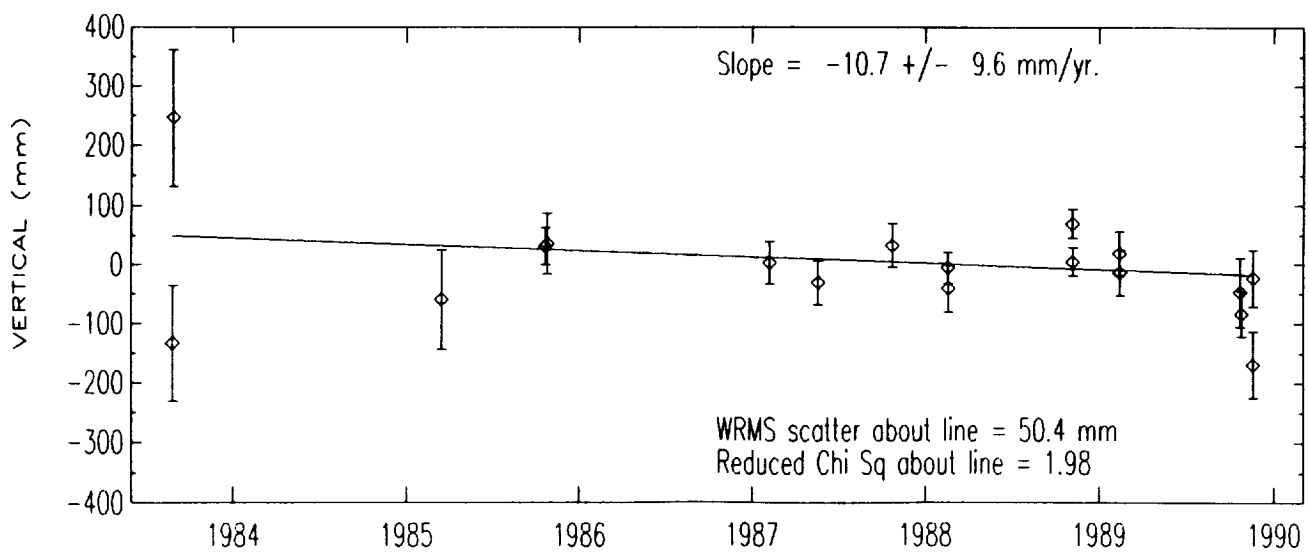
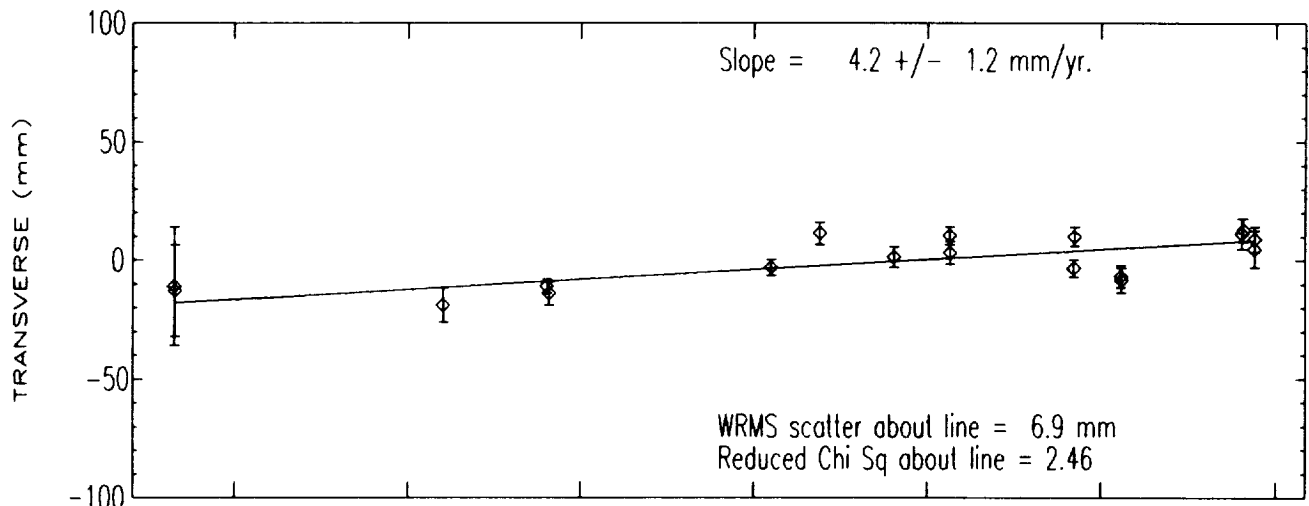
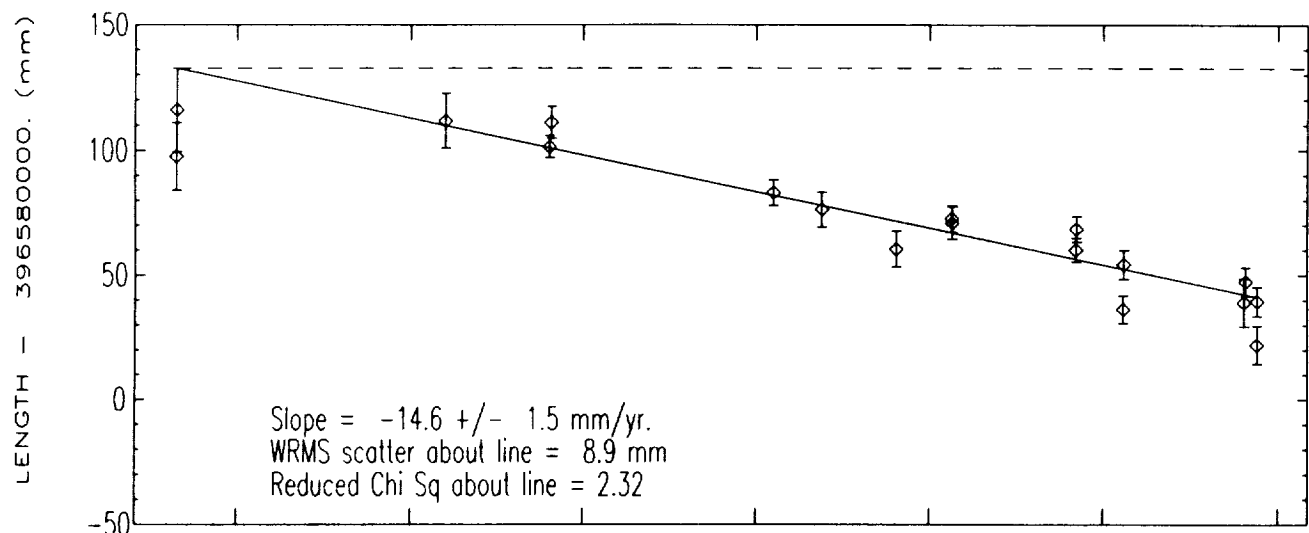
9 Observations



PRESIDIO TO VNDNBERG

(Length = 396 km)

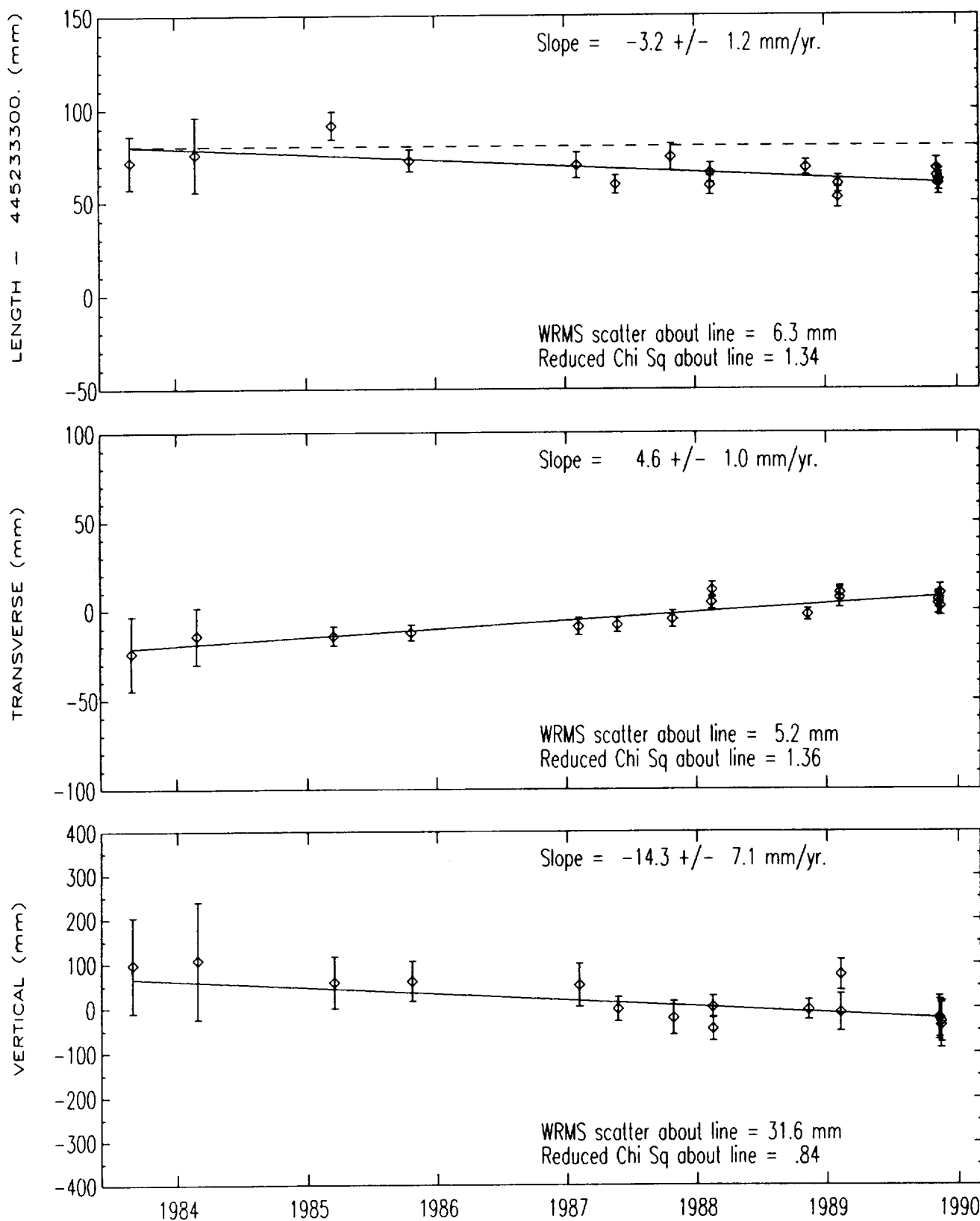
18 Observations



PT REYES TO VNDNBERG

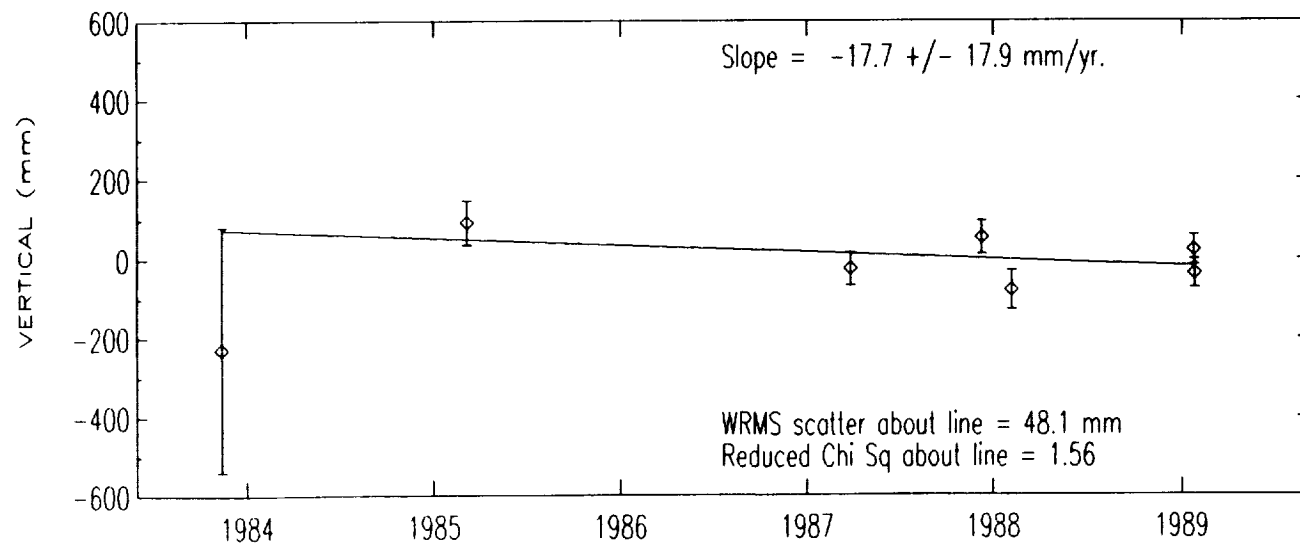
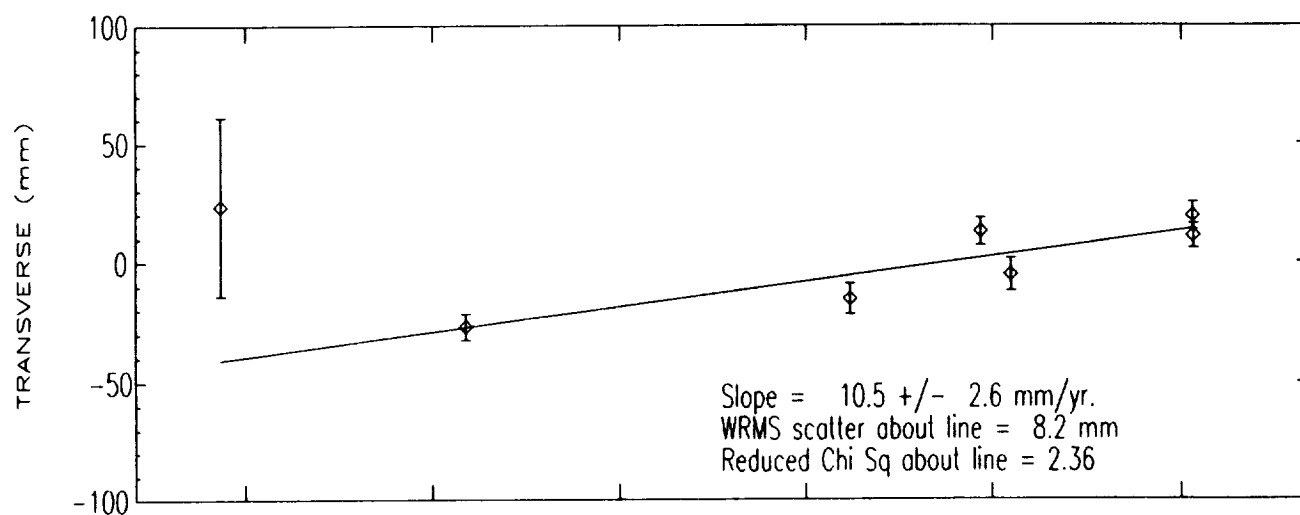
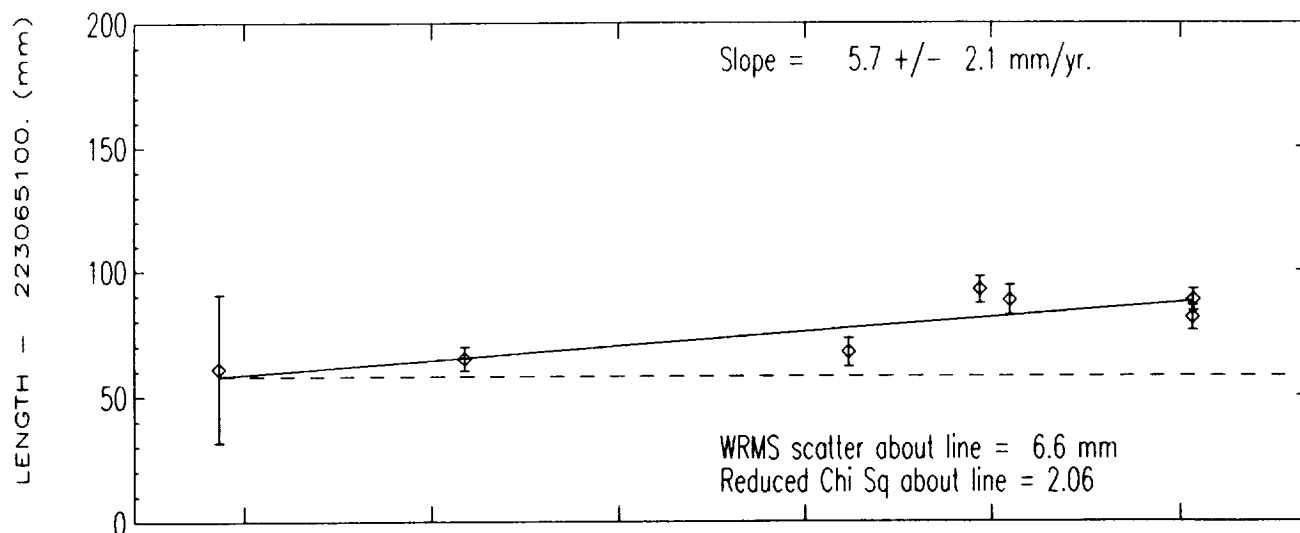
(Length = 445 km)

16 Observations



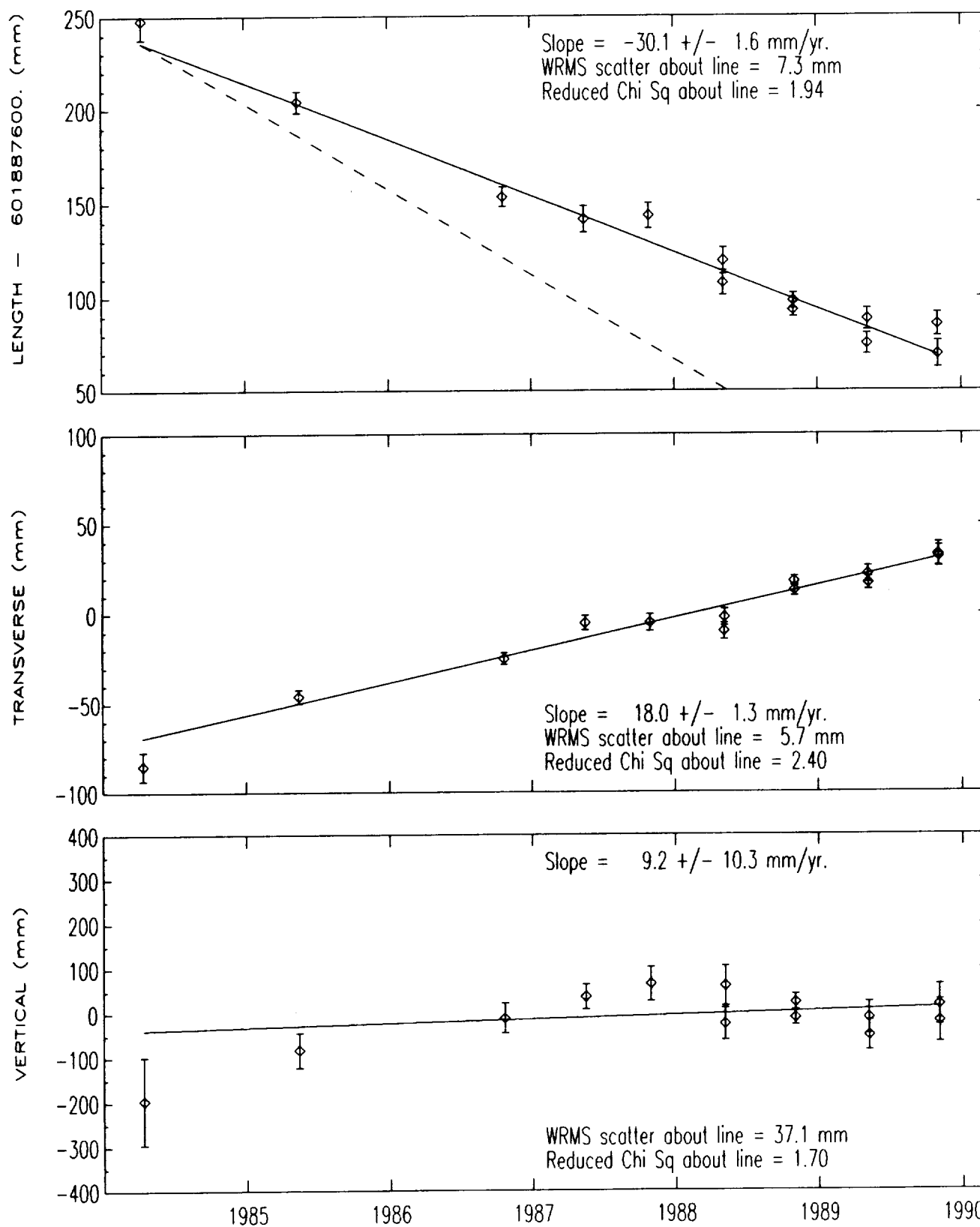
PVERDES TO VNDNBERG (Length = 223 km)

7 Observations



QUINCY TO VNDNBERG (Length = 601 km)

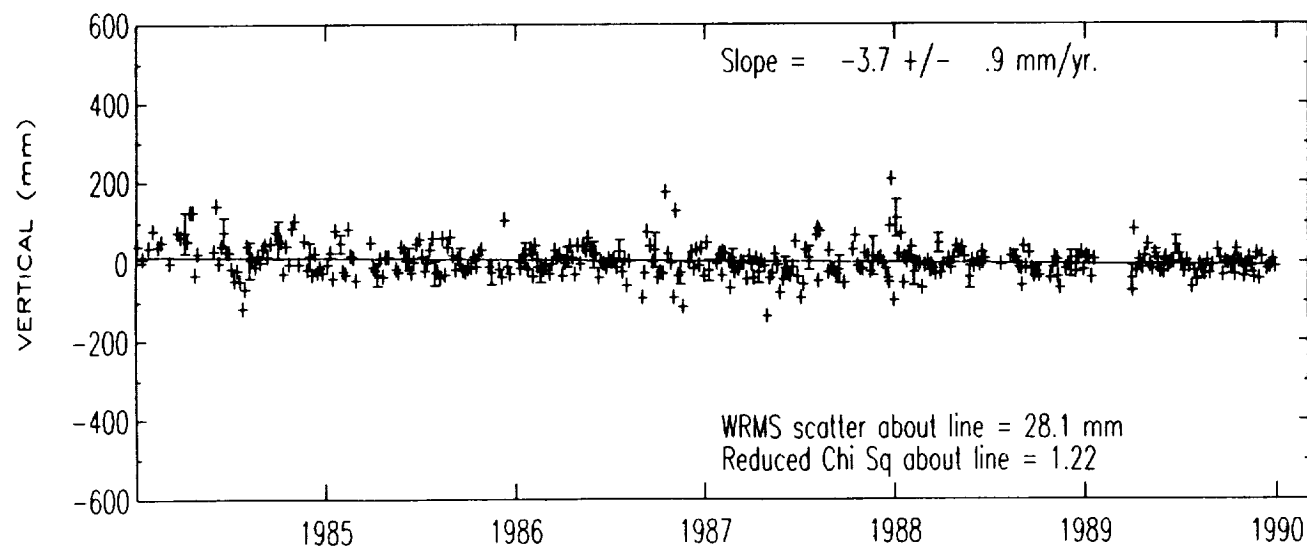
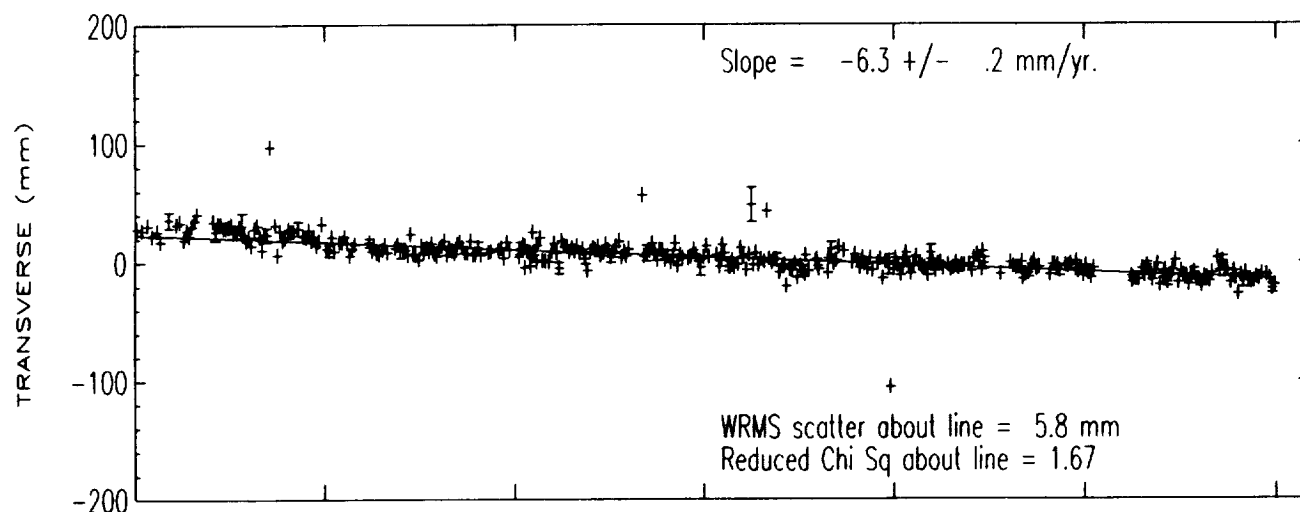
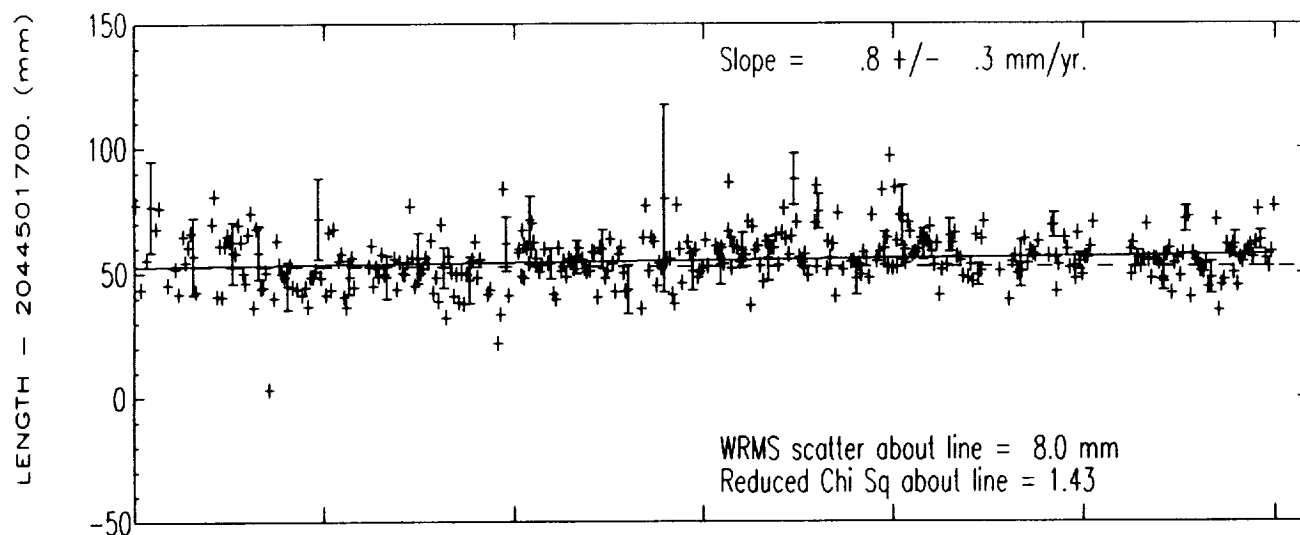
13 Observations



RICHMOND TO WESTFORD

(Length = 2044 km)

388 Observations

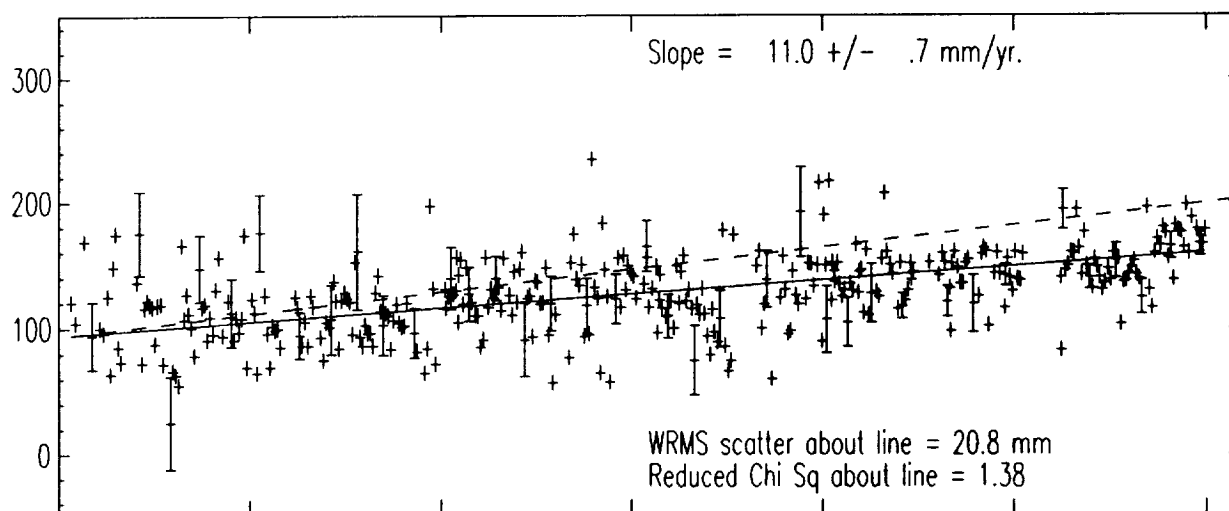


RICHMOND TO WETTZELL

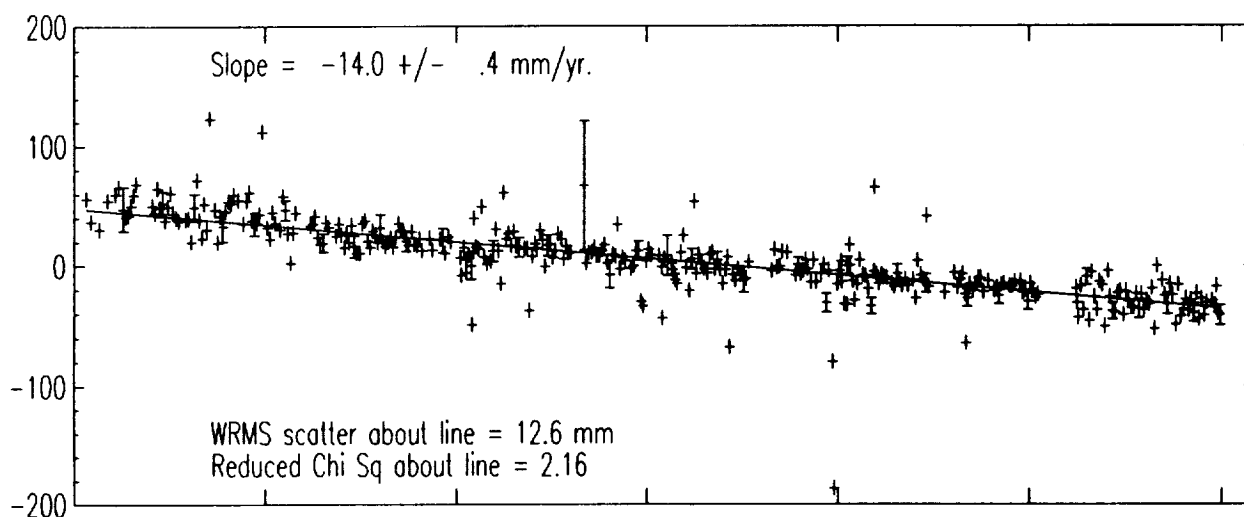
(Length = 7588 km)

367 Observations

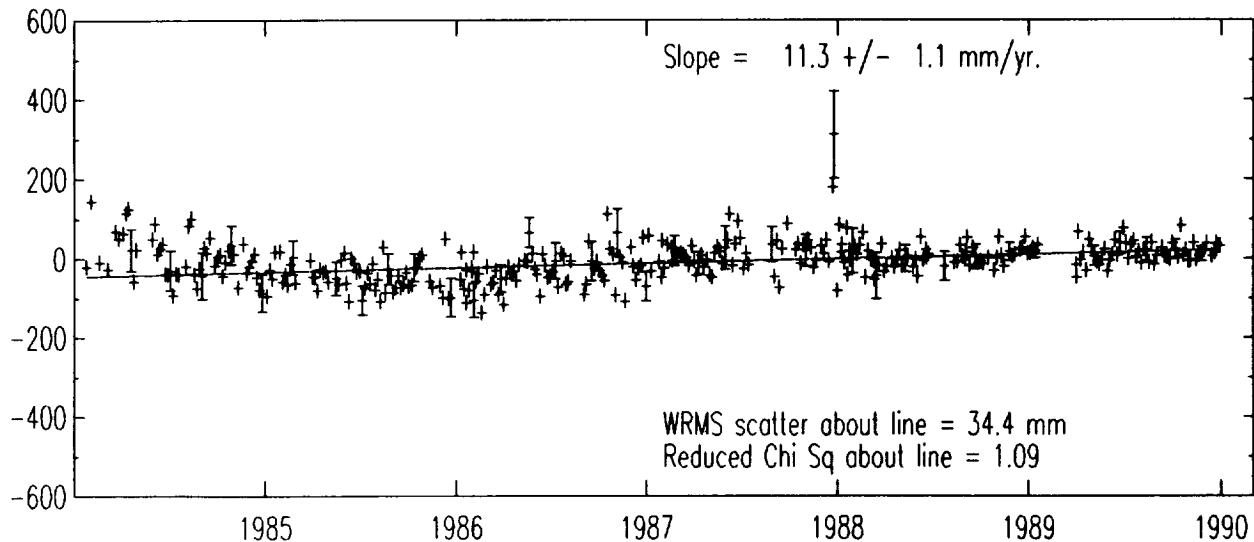
LENGTH - 7588398400. (mm)



TRANSVERSE (mm)



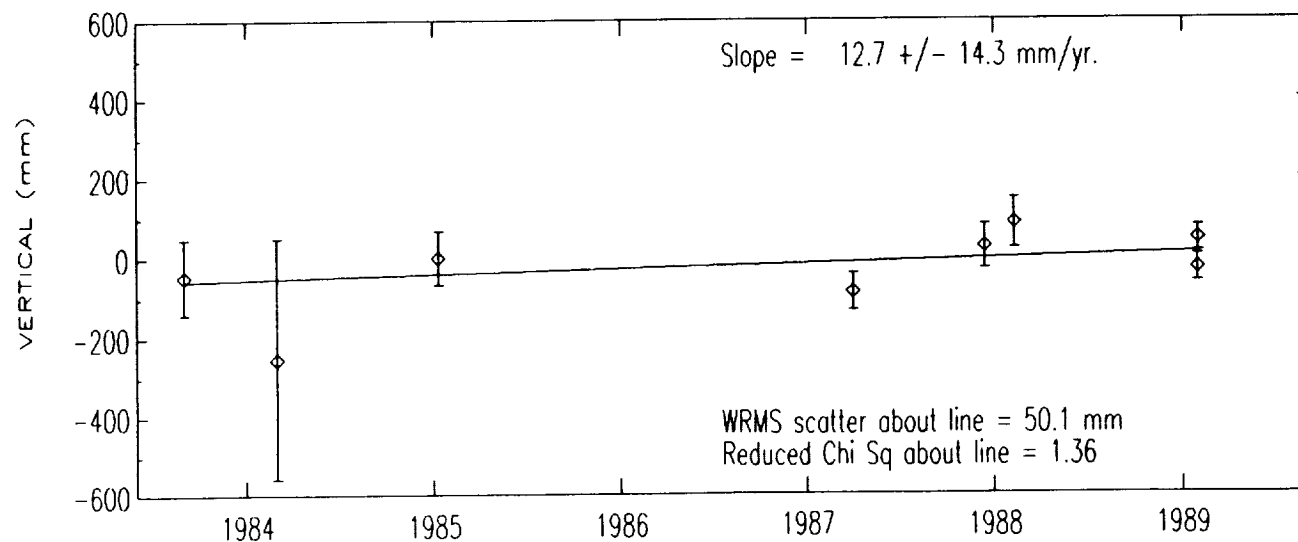
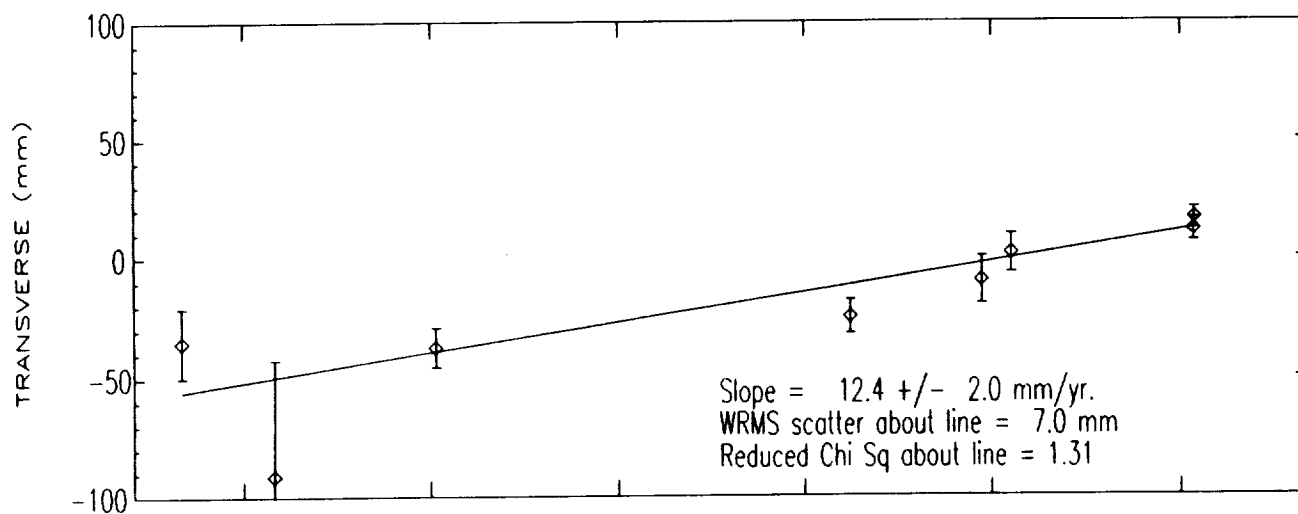
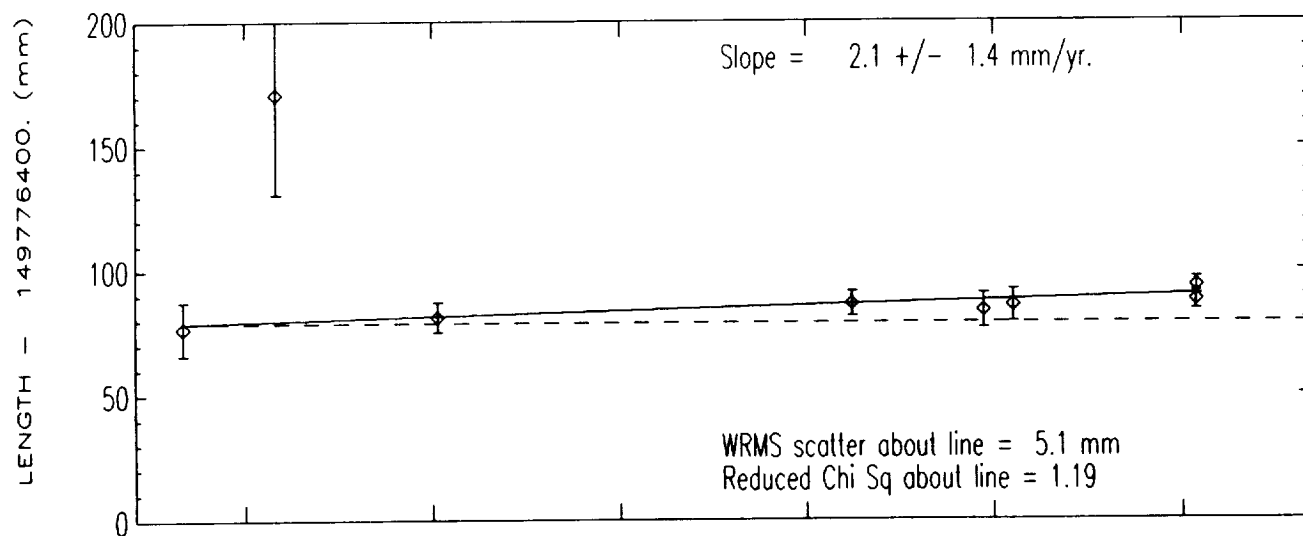
VERTICAL (mm)



SANPAULA TO VNDNBERG

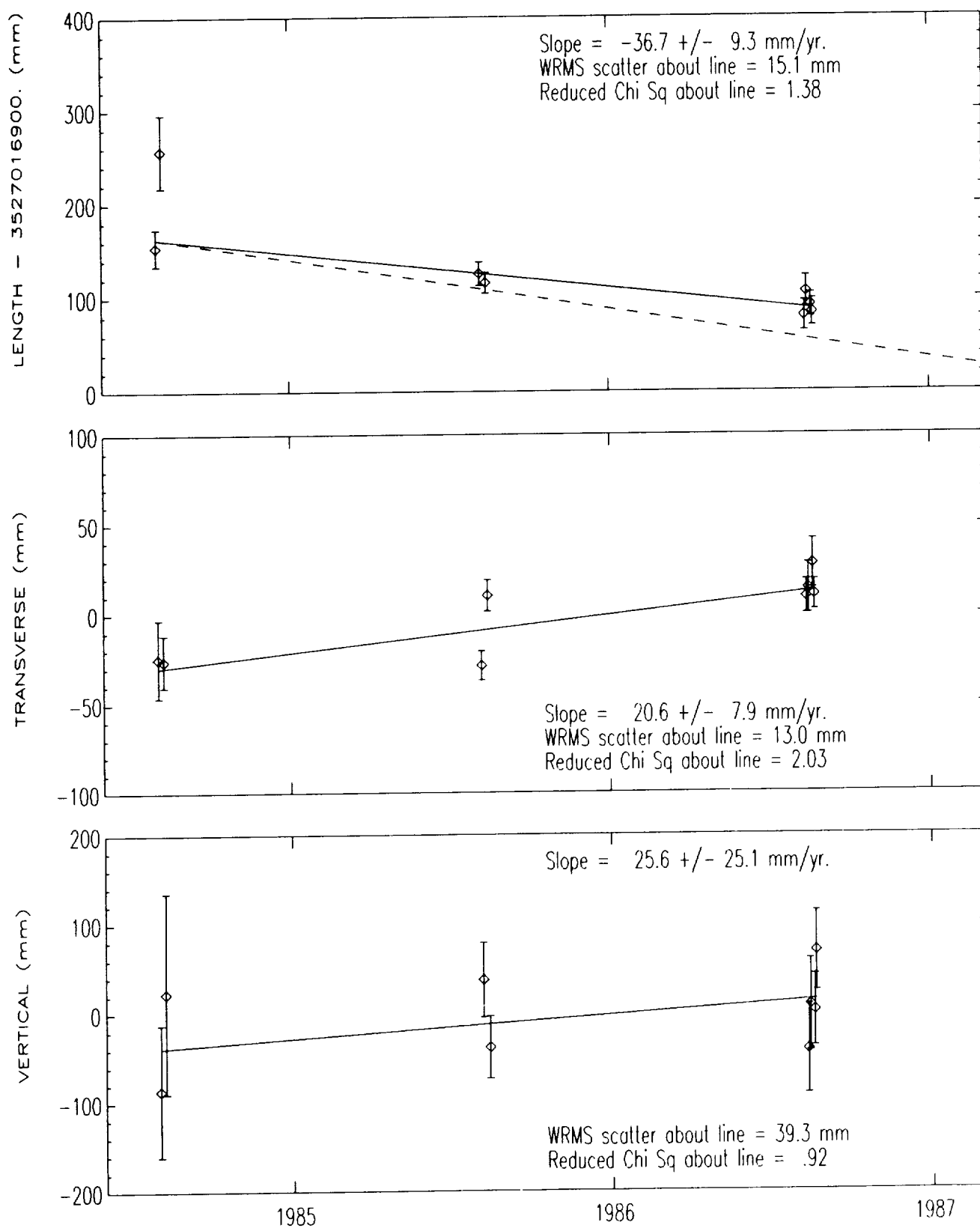
(Length = 149 km)

8 Observations



SOURDOGH TO VNDNBERG (Length = 3527 km)

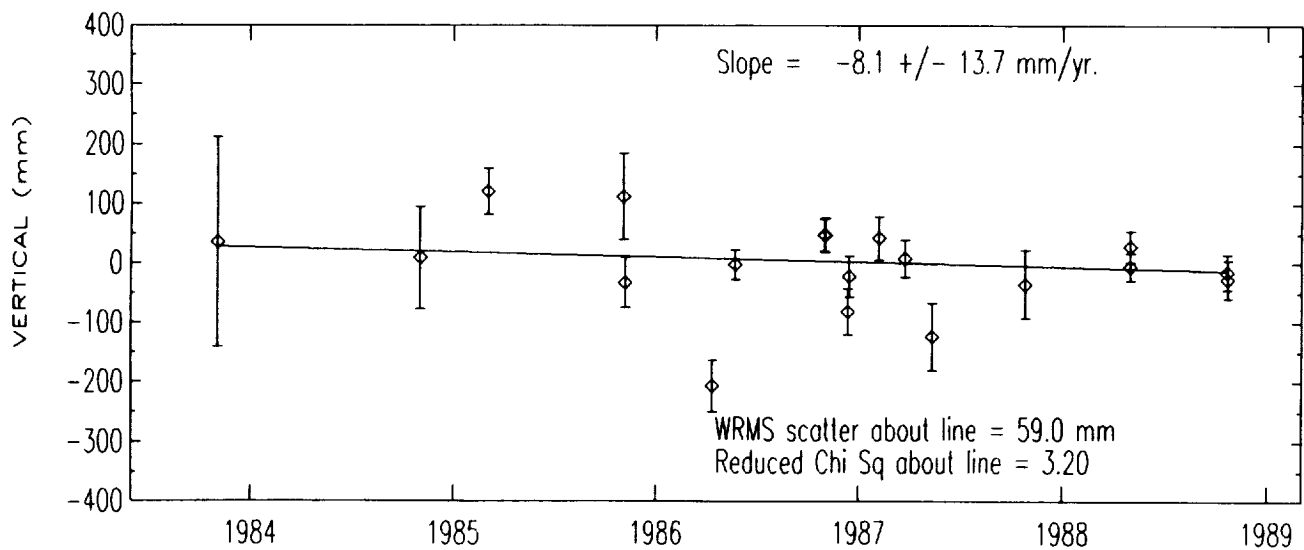
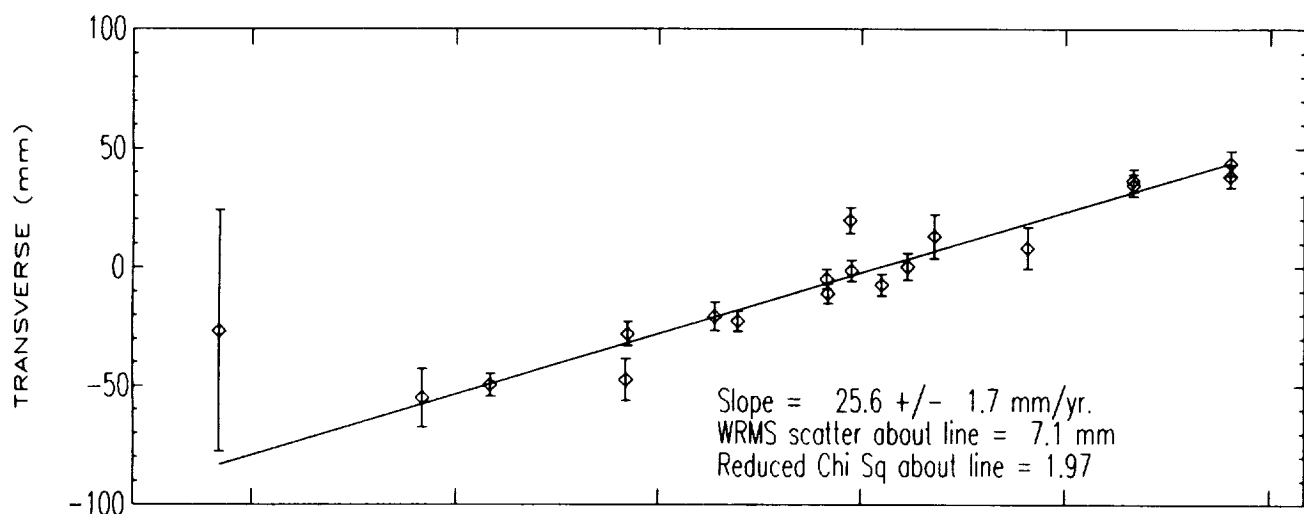
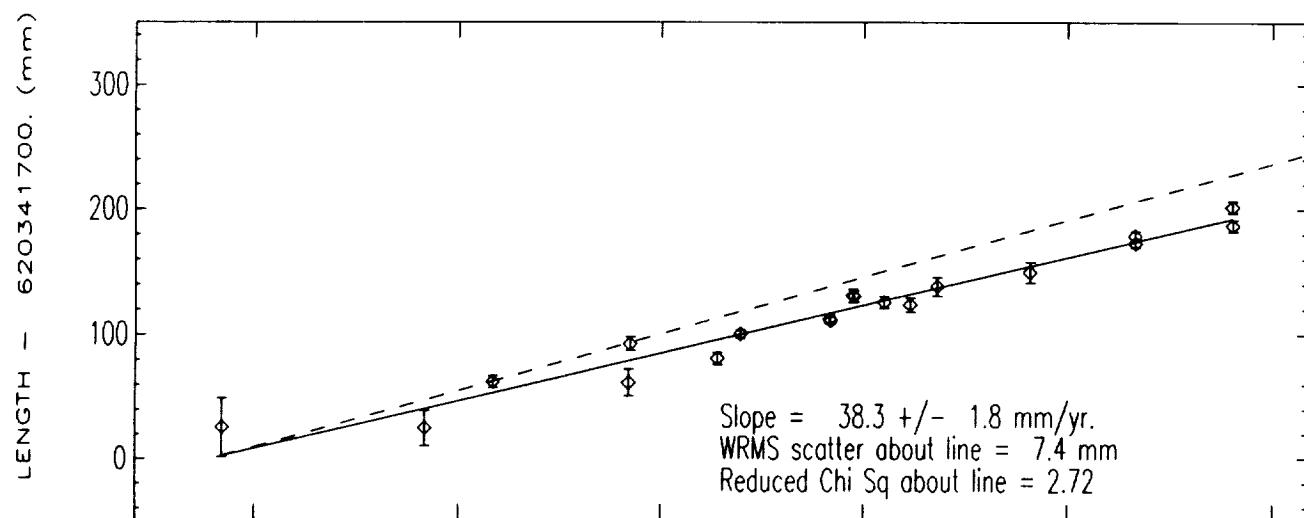
8 Observations



VNDNBERG TO YUMA

(Length = 620 km)

19 Observations



WESTFORD TO WETTZELL

(Length = 5998 km)

485 Observations

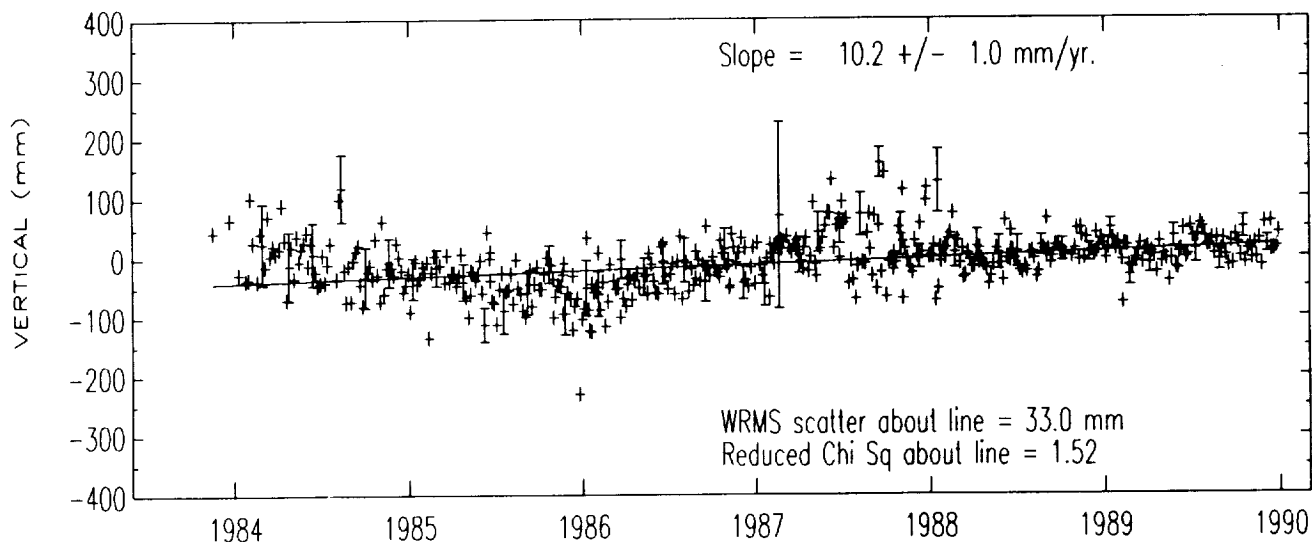
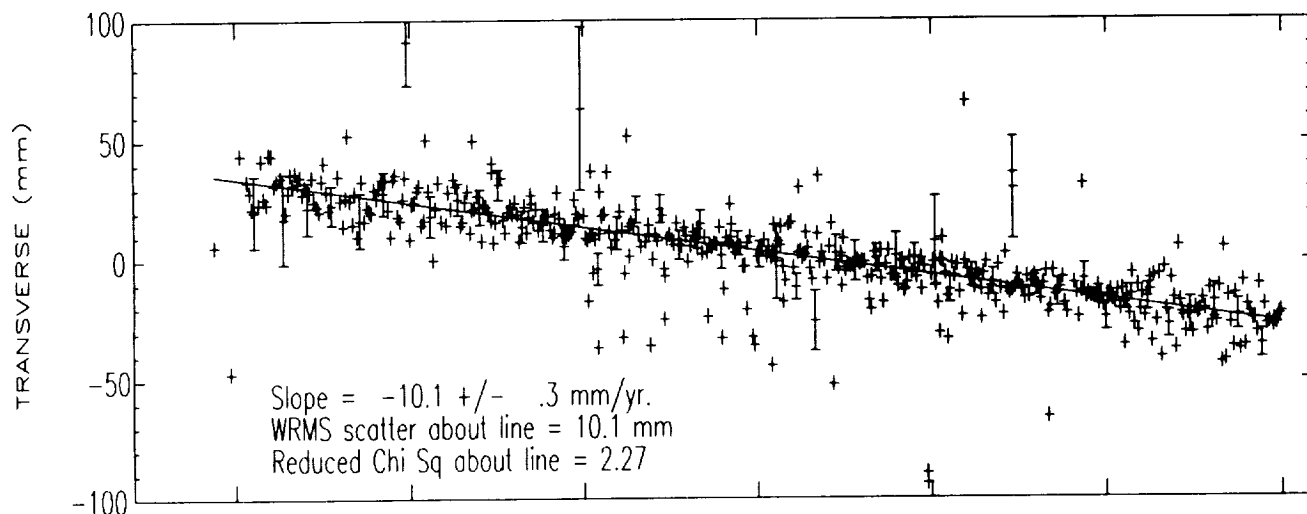
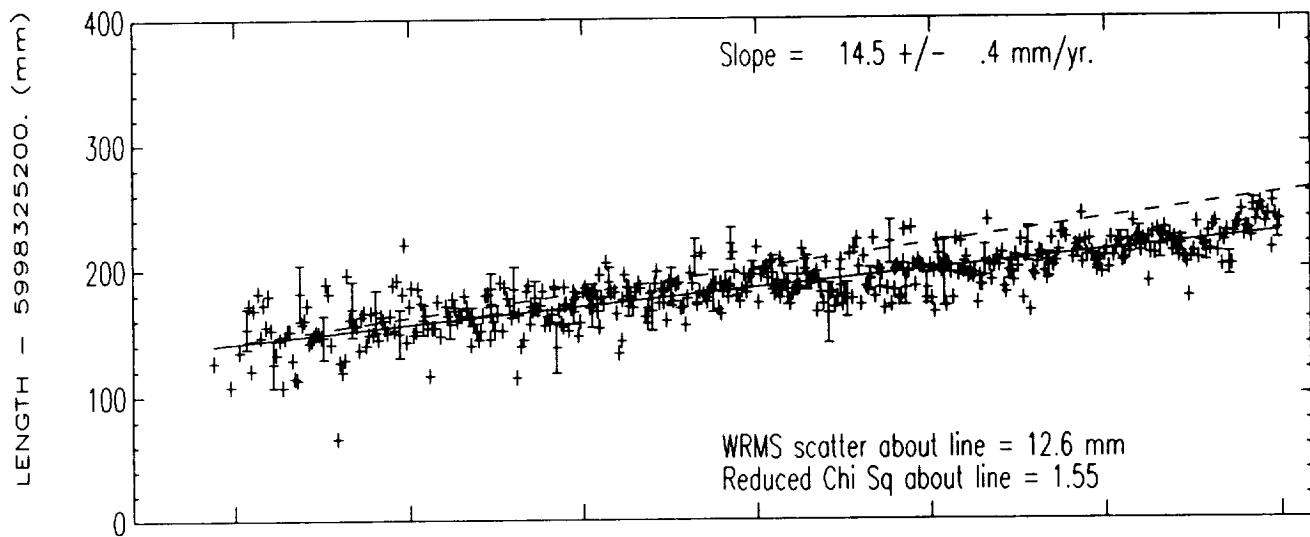


TABLE 7.1
VLBI BASELINE EVOLUTION
ALGOPARK TO GILCREEK

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
84	8	24	4475699351.5	9.5	28.2	15.9	-63.4	30.4
84	8	28	4475699378.2	5.9	-5.7	15.3	-99.6	24.6
85	8	24	4475699358.2	5.4	51.8	16.3	10.2	22.6
85	9	4	4475699376.9	7.8	26.8	7.4	-65.3	22.5

TABLE 7.2
VLBI BASELINE EVOLUTION
ALGOPARK TO HRAS 085

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
84	8	24	2787141066.7	8.1	16.0	10.0	-102.3	34.8
84	8	28	2787141074.2	6.9	9.4	9.2	-82.3	29.8
85	8	24	2787141074.6	6.3	30.8	10.1	-74.4	27.8
85	8	28	2787141031.9	17.3	10.3	14.9	80.1	67.8
85	9	4	2787141054.4	8.8	36.0	6.1	14.7	35.8

TABLE 7.3
VLBI BASELINE EVOLUTION
ALGOPARK TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
85	8	24	3407219029.9	5.4	12.8	12.4	-26.8	24.6

TABLE 7.4
VLBI BASELINE EVOLUTION
ALGOPARK TO PENTICTN

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
84	8	24	3074234567.9	19.7	-18.4	11.8	118.0	76.2
85	8	28	3074234656.1	24.9	-18.2	13.9	-75.4	99.0
85	9	4	3074234602.0	12.0	1.3	6.3	128.3	47.2

TABLE 7.5
VLBI BASELINE EVOLUTION
ALGOPARK TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	28	642611328.5	3.0	5.7	3.8	-24.7	15.4
85	8	24	642611328.2	2.4	9.4	3.5	-25.8	13.4

TABLE 7.6
VLBI BASELINE EVOLUTION
ALGOPARK TO YELLOWKN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	2912296010.2	12.3	4.8	10.9	108.6	48.1
85	9	4	2912296036.7	10.1	12.3	5.8	67.1	39.1

TABLE 7.7
VLBI BASELINE EVOLUTION
AUSTINTX TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	11	600902671.0	2.9	-1.0	4.0	25.9	23.5

TABLE 7.8
VLBI BASELINE EVOLUTION
AUSTINTX TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	11	1773844465.2	5.9	-4.1	5.2	-27.5	32.5

TABLE 7.9
VLBI BASELINE EVOLUTION
AUSTINTX TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	11	2677897005.3	6.6	-4.9	6.0	5.2	24.8

TABLE 7.10
VLBI BASELINE EVOLUTION
BERMUDA TO MARPOINT

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	4	1318010998.7	8.1	35.1	14.5	16.3	42.5
87	8	5	1318010951.7	8.0	-3.1	9.7	115.3	40.0
87	8	8	1318010989.9	5.1	-22.4	6.8	-34.4	24.5

TABLE 7.11
VLBI BASELINE EVOLUTION
BERMUDA TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	2	1696707882.6	8.6	5.4	7.2	-99.2	44.5
87	8	4	1696707897.0	8.9	6.8	8.7	-119.6	43.3
87	8	5	1696707868.3	8.4	6.5	7.9	40.5	42.2
87	8	8	1696707895.2	6.4	-5.2	7.0	-41.6	31.3

TABLE 7.12
VLBI BASELINE EVOLUTION
BERMUDA TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	2	1284684858.3	7.7	4.0	4.7	-27.9	28.7
87	8	4	1284684866.2	7.1	1.9	6.2	-33.0	31.1
87	8	5	1284684866.5	7.3	4.1	4.6	-5.6	28.5
87	8	8	1284684862.7	5.4	-.9	4.9	39.9	22.5

TABLE 7.13
VLBI BASELINE EVOLUTION
BLKBUTTE TO ELY

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	25	629461893.8	6.3	-6.9	4.0	-14.2	37.1
88	10	26	629461894.6	5.9	4.0	4.2	12.3	32.4

TABLE 7.14
VLBI BASELINE EVOLUTION
BLKBUTTE TO HATCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	2	3	942475322.6	9.5	-3.1	5.6	48.3	52.0
87	5	17	942475301.8	8.5	14.4	5.6	37.9	42.8
87	10	21	942475274.4	9.8	.0	5.4	-188.3	52.7
88	10	25	942475303.6	6.7	-6.5	4.5	-46.3	36.1
88	10	26	942475315.6	6.5	-2.5	5.2	-41.2	32.2

TABLE 7.15
VLBI BASELINE EVOLUTION
BLKBUTTE TO MON PEAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	11	8	107821842.3	10.4	-100.3	20.2	-140.9	153.7
85	1	12	107821837.9	15.0	-92.0	11.3	50.6	118.4
86	5	18	107821852.1	4.4	-61.7	3.7	65.2	34.6
86	10	26	107821843.9	4.0	-46.5	3.5	-32.8	33.1

TABLE 7.16
VLBI BASELINE EVOLUTION
BLKBUTTE TO OCOTILLO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	3	3	97160177.1	32.6	137.0	21.0	1711.5	205.4
85	1	15	97160212.5	9.9	124.4	6.6	1548.7	89.7

TABLE 7.17
VLBI BASELINE EVOLUTION
BLKBUTTE TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	5	18	459067510.8	4.8	-21.3	5.0	47.5	34.2
86	10	26	459067526.2	4.1	7.0	3.2	-18.3	30.7
87	10	21	459067500.9	7.9	4.4	5.6	-74.4	58.5

TABLE 7.18
VLBI BASELINE EVOLUTION
BLKBUTTE TO PRESIDIO

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	5	17	762366288.2	8.3	7.1	7.0	95.0	47.5
87	10	21	762366271.5	9.5	-7.0	7.4	-136.0	59.9

TABLE 7.19
VLBI BASELINE EVOLUTION
BLKBUTTE TO PT REYES

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	2	3	815918039.6	9.6	-22.1	6.4	6.5	53.1

TABLE 7.20
VLBI BASELINE EVOLUTION
BLOOMIND TO HRAS 085

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	8	19	1843913182.7	11.9	-8.9	11.6	-54.3	50.5

TABLE 7.21
VLBI BASELINE EVOLUTION
BLOOMIND TO WESTFORD

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	8	19	1316252670.7	12.1	-17.5	12.3	22.9	50.3

TABLE 7.22
VLBI BASELINE EVOLUTION
BREST TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	8	30	7945694699.3	22.0	17.4	8.7	-64.9	33.8
89	9	4	7945694730.3	20.1	-54.1	8.2	-13.0	30.7

TABLE 7.23
VLBI BASELINE EVOLUTION
BREST TO NOTO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	30	2029686963.5	7.2	2.1	6.2	-61.6	30.8
89	9	1	2029687001.4	5.8	4.3	8.5	-50.3	24.0
89	9	2	2029687020.2	6.6	9.4	8.6	47.8	29.8
89	9	4	2029686994.7	7.2	4.7	6.1	9.2	28.0

TABLE 7.24
VLBI BASELINE EVOLUTION
BREST TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	9	4	1480502014.1	5.8	-22.1	5.5	2.9	27.0

TABLE 7.25
VLBI BASELINE EVOLUTION
BREST TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	30	6574959705.0	17.6	18.6	9.6	-57.6	34.3

TABLE 7.26
VLBI BASELINE EVOLUTION
BREST TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	30	4970790321.0	12.3	15.2	7.3	-59.4	31.0
89	9	4	4970790346.1	12.2	-36.2	7.1	-30.0	29.0

TABLE 7.27
VLBI BASELINE EVOLUTION
BREST TO WETTZEILL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	30	1275262989.5	5.2	-15.8	4.9	-39.6	26.8
89	9	1	1275263013.0	4.2	-2.6	6.1	-9.8	21.7
89	9	2	1275263016.6	4.9	2.5	6.1	90.0	24.8
89	9	4	1275263001.1	5.2	-8.4	5.4	13.0	26.0

TABLE 7.28
VLBI BASELINE EVOLUTION
CARNUSTY TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	20	7568098954.7	19.0	-.8	8.2	27.0	31.5

TABLE 7.29
VLBI BASELINE EVOLUTION
CARNUSTY TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	20	6586356788.0	17.7	-3.4	7.9	.8	33.7

TABLE 7.30
VLBI BASELINE EVOLUTION
CARNUSTY TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	20	4848716948.1	12.5	1.7	6.4	13.9	31.6

TABLE 7.31
VLBI BASELINE EVOLUTION
CARNUSTY TO WETTZE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	18	1327033067.1	11.1	7.8	19.4	48.1	51.6
89	8	19	1327033088.2	9.6	29.8	15.1	18.4	43.8
89	8	20	1327033096.2	5.2	-6.9	4.3	54.1	26.8
89	8	22	1327033082.2	7.6	2.2	7.2	-12.0	30.0

TABLE 7.32
VLBI BASELINE EVOLUTION
CARROLGA TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	18	1799165582.9	12.7	-7.9	9.5	46.8	50.4

TABLE 7.33
VLBI BASELINE EVOLUTION
CARROLGA TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	18	992547370.9	7.9	-5.6	9.4	-14.1	45.5

TABLE 7.34
VLBI BASELINE EVOLUTION
CARROLGA TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	18	1552637957.8	10.9	-2.3	8.4	-1.8	43.7

TABLE 7.35
VLBI BASELINE EVOLUTION
CHLBOLTN TO HAYSTACK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	10	16	5072314465.4	11.2	270.5	363.8	-145.5	364.9
80	10	17	5072314448.4	11.7	244.8	363.8	-130.7	365.2
80	10	18	5072314471.5	13.0	217.1	363.9	-260.0	366.8
80	10	19	5072314458.3	10.7	179.7	363.8	-221.3	365.0
80	10	20	5072314455.8	11.7	118.5	363.8	-255.9	365.0
80	10	21	5072314403.4	14.0	85.1	363.9	-419.9	365.7
80	10	22	5072314445.4	9.9	77.6	363.8	-216.3	364.7

TABLE 7.36
VLBI BASELINE EVOLUTION
CHLBOLTN TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	10	16	7663737337.4	26.2	419.6	549.7	-253.8	550.7
80	10	17	7663737374.5	34.9	357.7	549.7	-312.6	551.6
80	10	18	7663737405.9	37.7	312.3	549.8	-485.3	552.6
80	10	19	7663737367.6	37.7	257.6	549.7	-396.5	551.8
80	10	20	7663737367.2	35.6	175.0	549.7	-463.2	551.7
80	10	21	7663737273.5	41.9	135.0	549.8	-608.8	552.7
80	10	22	7663737396.7	32.7	106.7	549.7	-447.0	551.2

TABLE 7.37
VLBI BASELINE EVOLUTION
CHLBOLTN TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	10	16	1109864328.1	6.2	70.1	79.8	-4.0	84.2
80	10	17	1109864322.5	7.6	76.2	79.9	-20.0	85.9
80	10	18	1109864297.2	21.8	98.9	85.4	-7.4	108.9
80	10	19	1109864322.8	6.7	49.5	79.8	43.8	84.1
80	10	20	1109864322.4	6.5	44.8	79.8	42.8	84.3
80	10	21	1109864315.9	8.2	19.5	79.9	-141.1	86.9
80	10	22	1109864325.2	5.9	20.7	79.8	14.6	83.8

TABLE 7.38
VLBI BASELINE EVOLUTION
CHLBOLTN TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	10	16	7846991262.6	23.3	343.8	563.1	-354.0	563.3
80	10	17	7846991278.6	25.1	279.9	563.1	-346.2	563.4
80	10	18	7846991282.5	28.0	206.1	563.1	-479.7	564.1
80	10	20	7846991274.6	24.6	55.3	563.1	-503.0	563.3
80	10	21	7846991198.4	29.5	21.3	563.1	-667.1	564.0
80	10	22	7846991263.6	22.4	8.9	563.1	-427.8	563.1

TABLE 7.39
VLBI BASELINE EVOLUTION
DEADMANL TO JPL MV1

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	2	2	174643147.2	6.3	17.6	8.5	13.7	56.4

TABLE 7.40
VLBI BASELINE EVOLUTION
DEADMANL TO SANPAULA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	2	29	250758733.5	41.0	-9.6	48.7	25.0	301.7
85	1	9	250758734.6	12.9	-57.1	20.4	-360.5	129.3
87	3	28	250758802.6	5.8	-12.3	8.3	4.8	49.9
87	12	11	250758841.4	6.4	.9	8.1	-8.8	50.9

TABLE 7.41
VLBI BASELINE EVOLUTION
DSS15 TO GILCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	26	3807400685.3	5.9	-20.2	5.4	-56.5	19.4

TABLE 7.42
VLBI BASELINE EVOLUTION
DSS15 TO GOLDVENU

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	21069152.4	3.0	- .9	2.5	6.5	13.4

TABLE 7.43
VLBI BASELINE EVOLUTION
DSS15 TO HAYSTACK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	26	3899992483.9	5.7	-10.4	4.9	12.3	17.8

TABLE 7.44
VLBI BASELINE EVOLUTION
DSS15 TO MOJ 7288

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	10063344.1	3.5	.0	2.0	- .6	16.8

TABLE 7.45
VLBI BASELINE EVOLUTION
DSS15 TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	10011685.5	3.1	.9	1.7	- .6	12.1

TABLE 7.46
VLBI BASELINE EVOLUTION
DSS15 TO OVR 7853

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	237345165.0	3.0	1.0	2.9	.5	13.4

TABLE 7.47
VLBI BASELINE EVOLUTION
DSS15 TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	236711198.1	2.9	3.3	2.8	-9.1	13.9

TABLE 7.48
VLBI BASELINE EVOLUTION
DSS15 TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	26	3265203803.3	9.8	-82.9	5.9	52.1	36.3

TABLE 7.49
VLBI BASELINE EVOLUTION
DSS45 TO GILCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	16	10526654656.9	25.4	22.5	30.3	33.3	41.7
88	7	30	10526654546.3	32.5	4.3	23.8	111.0	36.4
88	7	31	10526654543.7	33.6	8.1	20.8	34.9	33.5
88	12	10	10526654641.0	19.4	3.1	41.1	-19.4	44.4
89	1	13	10526654603.5	20.9	-3.9	21.5	90.9	29.8
89	2	18	10526654572.8	17.8	-2.0	40.8	74.5	44.4
89	11	25	10526654498.7	19.0	6.8	40.6	21.1	44.6
89	12	18	10526654544.8	15.5	4.8	18.4	153.7	20.9

TABLE 7.50
VLBI BASELINE EVOLUTION
DSS45 TO HOBART26

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	25	832194182.6	8.6	-4.8	5.3	-56.8	23.7
89	12	18	832194199.9	6.0	3.9	3.4	.5	19.5

TABLE 7.51
VLBI BASELINE EVOLUTION
DSS45 TO KASHIMA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	16	7436721526.2	17.3	-12.9	21.0	93.4	35.2
88	7	30	7436721497.6	23.3	-66.8	16.8	28.8	40.4
88	7	31	7436721428.0	23.2	-37.7	15.6	15.6	37.9
88	12	10	7436721504.0	11.8	-53.2	28.7	67.2	34.5
89	1	13	7436721479.6	14.5	-63.3	15.0	86.1	28.7
89	2	18	7436721430.6	9.7	-61.0	28.2	82.2	32.5
89	11	25	7436721394.8	13.2	-84.4	28.4	14.7	34.6
89	12	18	7436721419.9	8.6	-93.8	11.6	120.3	17.3

TABLE 7.52
VLBI BASELINE EVOLUTION
DSS45 TO KAUAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	5	23	7769504755.2	23.1	15.9	16.0	77.0	43.1
88	7	16	7769504763.2	19.1	-17.6	19.5	73.2	38.5
88	7	30	7769504699.7	25.6	-25.1	18.8	56.7	39.9
88	7	31	7769504700.6	25.9	-7.9	15.5	-22.7	38.1
88	12	10	7769504741.0	13.6	-92.1	30.2	13.2	36.8
89	1	13	7769504705.4	14.5	-36.5	16.4	93.9	28.1
89	2	18	7769504708.1	11.2	-55.9	29.9	57.3	34.7
89	11	25	7769504632.4	12.8	-96.2	30.2	-.5	36.5
89	12	18	7769504690.2	9.0	-84.1	13.7	102.8	17.7

TABLE 7.53
VLBI BASELINE EVOLUTION
DSS45 TO KWAJAL26

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	16	5171635895.1	17.8	-35.8	12.9	22.3	39.0
88	7	30	5171635791.4	23.4	-60.5	12.8	69.5	48.2
88	7	31	5171635797.7	25.9	-54.1	12.6	-24.0	54.0

TABLE 7.54
VLBI BASELINE EVOLUTION
DSS45 TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	5	23	10586283452.5	36.5	35.0	22.6	160.0	40.4

TABLE 7.55
VLBI BASELINE EVOLUTION
DSS45 TO SESHAN25

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	7	16	7411129030.1	18.1	-19.0	21.8	88.8	34.8
88	7	30	7411128987.2	23.1	-79.6	17.8	43.6	40.9
88	7	31	7411128979.0	24.7	-46.3	16.5	-73.4	40.5
88	12	10	7411128984.3	13.4	-53.1	28.6	79.0	34.4
89	1	13	7411128967.4	15.9	-53.2	15.9	69.5	30.0
89	2	18	7411128934.8	12.0	-48.2	28.2	46.8	33.3
89	12	18	7411128893.5	12.4	-83.4	11.4	124.8	20.6

TABLE 7.56
VLBI BASELINE EVOLUTION
DSS65 TO HRAS 085

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	18	7975454821.4	11.3	-8.0	10.2	88.5	35.1

TABLE 7.57
VLBI BASELINE EVOLUTION
DSS65 TO MEDICINA

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	8	31	1378852886.4	5.3	-1.3	4.7	78.8	22.6
88	11	9	1378852885.4	2.6	10.0	3.3	66.3	10.2
88	12	14	1378852889.8	1.6	-3.3	3.0	29.8	8.1
89	2	20	1378852885.3	1.8	1.0	3.0	60.6	7.6

TABLE 7.58
VLBI BASELINE EVOLUTION
DSS65 TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	18	8395867404.5	12.8	6.7	9.8	110.5	36.6

TABLE 7.59
VLBI BASELINE EVOLUTION
DSS65 TO NOTO

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	6	3	1711832921.4	2.2	13.6	6.8	76.6	11.1

TABLE 7.60
VLBI BASELINE EVOLUTION
DSS65 TO ONSALA60

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	18	2205023120.0	3.6	-5.2	6.5	41.5	18.0
88	11	9	2205023109.2	3.2	8.9	4.4	57.4	12.0
88	12	14	2205023112.7	2.3	-6.0	4.2	41.8	9.2
89	2	20	2205023114.2	2.2	-7.4	4.1	35.9	8.2
89	6	3	2205023105.3	2.9	-10.8	8.4	102.6	12.2

TABLE 7.61
VLBI BASELINE EVOLUTION
DSS65 TO RICHMOND

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	8	31	6726067066.2	17.7	-54.7	12.9	41.8	40.3
88	11	9	6726067073.4	11.8	-6.6	12.2	85.2	28.7
88	12	14	6726067099.8	7.2	-12.0	11.0	21.4	19.5

TABLE 7.62
VLBI BASELINE EVOLUTION
DSS65 TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	8	31	5300362808.5	8.9	-59.4	9.1	-1.2	26.3
88	11	9	5300362817.8	5.7	-11.6	9.3	62.6	19.4
88	12	14	5300362819.3	3.6	-24.4	8.7	41.6	14.8
89	2	20	5300362821.7	5.2	-20.7	8.6	45.2	17.7
89	6	3	5300362842.2	5.6	-38.2	19.5	58.9	25.4

TABLE 7.63
VLBI BASELINE EVOLUTION
DSS65 TO WETTZELL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	8	31	1655418185.5	4.7	-5.3	4.9	84.8	21.8
88	10	18	1655418184.3	3.5	-5.2	5.8	45.9	16.9
88	12	14	1655418186.5	1.7	2.0	3.3	61.9	7.5
89	2	20	1655418187.2	1.8	-2.3	3.3	40.6	6.8
89	6	3	1655418183.7	2.2	4.7	6.5	82.7	9.6

TABLE 7.64
VLBI BASELINE EVOLUTION
EFLSBERG TO HAYSTACK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
79	11	25	5591903523.0	32.2	-619.3	401.6	-529.2	410.9
80	7	26	5591903631.0	52.4	890.0	401.1	-27.8	415.8
80	7	27	5591903514.5	60.4	923.0	401.1	169.1	420.3
80	9	26	5591903532.3	16.0	1027.6	401.2	36.7	402.7
80	9	27	5591903543.3	19.2	1058.0	401.2	62.7	403.6
80	9	28	5591903557.6	13.4	1057.9	401.2	105.4	402.2
83	5	5	5591903609.8	11.9	19.3	731.2	164.4	471.4
83	5	5	5591903608.9	16.3	-13.8	731.2	172.1	472.2 *

* WESTFORD - EFLSBERG results mapped to HAYSTACK - EFLSBERG

TABLE 7.65
VLBI BASELINE EVOLUTION
EFLSBERG TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	7	26	8084184804.1	30.5	1288.0	579.9	151.4	580.9
80	7	27	8084184841.7	31.2	1315.6	579.9	33.4	581.2
80	9	26	8084184744.3	53.8	1543.9	580.0	-22.0	583.5
80	9	27	8084184897.7	44.4	1580.6	579.9	-137.4	582.0
80	9	28	8084184802.5	41.4	1575.1	580.0	40.0	582.0
83	5	5	8084184887.1	22.5	99.8	678.5	192.6	554.0

TABLE 7.66
VLBI BASELINE EVOLUTION
EFLSBERG TO NRAO 140

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
79	11	25	6334648468.4	36.8	-707.1	454.8	-626.6	464.0

TABLE 7.67
VLBI BASELINE EVOLUTION
EFLSBERG TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
80	7	26	832210510.3	5.5	137.1	61.8	-49.9	64.5
80	7	27	832210491.1	5.8	123.3	62.8	-55.6	65.4
80	9	26	832210506.1	5.6	140.0	60.0	-111.3	66.7
80	9	27	832210518.1	5.2	148.3	59.9	-90.1	64.5
80	9	28	832210500.1	6.7	131.1	60.2	-103.2	68.1
83	5	5	832210508.6	3.2	2.9	146.7	-45.9	63.6

TABLE 7.68
VLBI BASELINE EVOLUTION
EFLSBERG TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
79	11	25	8203742495.3	39.3	-1045.7	589.7	-692.1	595.5
80	7	26	8203742524.0	18.5	1261.9	588.8	-69.1	588.7
80	7	27	8203742495.7	18.4	1282.9	588.7	-108.7	588.7
80	9	26	8203742429.7	30.5	1491.0	588.8	-258.5	589.4
80	9	27	8203742519.5	24.7	1542.8	588.7	-313.4	588.8
80	9	28	8203742491.7	23.8	1544.9	588.7	-211.2	588.9

TABLE 7.69
VLBI BASELINE EVOLUTION
EFLSBERG TO ROBLED32

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	5	5	1414092462.6	9.3	5.3	265.1	51.2	150.7

TABLE 7.70
VLBI BASELINE EVOLUTION
EFLSBERG TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	5	5	5592851134.4	16.3	-13.8	731.2	172.1	472.2

TABLE 7.71
VLBI BASELINE EVOLUTION
ELY TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	4	2	378140557.3	4.6	-13.0	5.6	-9.3	34.7

TABLE 7.72
VLBI BASELINE EVOLUTION
ELY TO PLATTVIL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	4	22	871865369.3	13.1	2.8	15.5	-84.7	105.5
85	5	6	871865388.4	5.4	-1.4	6.9	48.4	43.7
86	4	2	871865377.7	13.1	-9.0	17.3	75.3	91.0

TABLE 7.73
VLBI BASELINE EVOLUTION
ELY TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	5	10	734889069.7	8.2	-38.3	7.1	19.4	41.5
88	4	29	734889054.8	6.1	21.1	6.0	10.3	46.6
88	4	30	734889038.3	14.1	28.3	18.3	-7.5	117.1
88	10	25	734889065.6	3.9	27.0	3.8	-10.5	21.2
88	10	26	734889065.3	4.1	37.2	4.5	32.5	20.8

TABLE 7.74
VLBI BASELINE EVOLUTION
ELY TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	4	30	3580309243.3	12.2	-.2	14.6	15.8	39.3
89	5	1	3580309230.9	12.9	-17.4	9.2	-71.9	40.6

TABLE 7.75
VLBI BASELINE EVOLUTION
ELY TO YUMA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	5	10	707152530.1	9.2	.9	5.9	-97.0	52.8
88	4	29	707152508.0	7.0	-6.6	5.0	14.6	48.0
88	4	30	707152486.1	20.8	-10.8	9.1	30.5	118.5

TABLE 7.76
VLBI BASELINE EVOLUTION
FLAGSTAF TO PLATTVIL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	4	17	820904442.6	13.4	8.7	14.4	141.9	147.9
85	5	2	820904435.2	5.4	.1	5.0	-97.9	38.9
86	3	26	820904448.6	6.0	1.0	5.9	12.8	42.2
88	10	15	820904459.1	10.0	-3.7	7.4	-72.1	64.6

TABLE 7.77
VLBI BASELINE EVOLUTION
FLAGSTAF TO VERNAL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	5	6	595755609.4	5.9	5.4	4.1	-5.9	33.4
88	4	25	595755611.9	13.5	-15.3	9.8	45.7	81.0

TABLE 7.78
VLBI BASELINE EVOLUTION
FORT ORD TO GILCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	2	13	3530381358.3	13.1	13.2	8.1	-36.3	42.1
88	2	14	3530381388.0	15.9	24.2	14.4	21.4	47.2
88	2	17	3530381370.0	12.4	-5.8	7.1	24.2	41.0
88	2	18	3530381350.8	14.3	-7.6	7.9	-42.4	47.1

TABLE 7.79
VLBI BASELINE EVOLUTION
FORT ORD TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	3	10	1774675630.0	7.9	-77.0	6.3	14.8	43.2
85	10	23	1774675656.5	9.1	-43.7	8.6	92.0	50.4
87	2	9	1774675688.8	9.7	-24.4	8.8	-84.7	47.6
87	10	18	1774675722.4	9.0	-.6	8.7	20.4	42.5

TABLE 7.80
VLBI BASELINE EVOLUTION
FORT ORD TO JPL MV1

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	10	18	426048766.3	5.9	.2	6.0	34.4	40.9

TABLE 7.81
VLBI BASELINE EVOLUTION
FORT ORD TO MON PEAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	2	9	644206242.8	6.8	-19.8	5.4	-4.1	46.5

TABLE 7.82
VLBI BASELINE EVOLUTION
FORT ORD TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	8	25	139787413.8	10.0	-3.8	10.5	54.1	72.8
85	10	23	139787406.8	5.4	-12.7	4.3	-45.1	50.2
88	2	17	139787375.3	5.6	-.5	4.9	38.4	36.3
88	2	18	139787378.8	6.4	7.1	4.9	-18.1	43.8

TABLE 7.83
VLBI BASELINE EVOLUTION
FORT ORD TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	5	21	189551467.0	8.5	-1.6	7.0	-120.9	59.0
88	2	13	189551469.2	6.1	2.9	5.1	-40.4	38.6
88	2	14	189551476.3	6.6	12.8	5.6	91.7	44.5

TABLE 7.84
VLBI BASELINE EVOLUTION
FORTORDS TO GILCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	3538522680.9	16.0	38.1	6.9	148.7	43.1
88	11	9	3538522641.1	13.4	39.2	7.7	100.6	34.6
89	2	2	3538522629.8	15.6	29.1	7.9	144.3	43.5
89	2	3	3538522635.6	12.3	40.5	13.9	137.9	39.0
89	10	23	3538522593.1	11.6	5.2	7.9	196.0	31.6
89	11	1	3538522583.7	10.7	35.1	14.2	127.6	38.2
89	11	2	3538522588.5	12.1	10.6	8.8	124.0	41.1
89	11	6	3538522571.8	13.0	-19.2	14.5	163.0	39.6
89	11	7	3538522572.3	10.4	-14.6	7.6	127.0	29.6
89	11	11	3538522583.5	11.3	6.4	14.1	132.2	35.5
89	11	12	3538522585.9	12.0	9.9	8.1	157.4	35.4
89	11	16	3538522592.6	12.3	-.1	14.5	183.3	37.5
89	11	17	3538522599.2	11.8	-10.9	8.1	214.3	34.8

TABLE 7.85
VLBI BASELINE EVOLUTION
FORTORDS TO HATCREEK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	470018690.9	7.3	35.0	4.5	145.2	43.4
88	11	9	470018689.1	6.2	29.2	3.3	107.0	31.7
89	2	3	470018681.5	5.5	40.0	3.9	76.0	36.4
89	5	10	470018669.8	6.2	51.8	4.2	141.7	38.3
89	5	11	470018684.4	6.1	48.1	3.7	197.9	39.1
89	10	23	470018608.6	6.2	43.5	4.1	137.7	28.0
89	11	1	470018616.7	4.6	63.9	4.8	110.2	32.6
89	11	2	470018616.1	6.1	48.1	5.5	113.6	38.2
89	11	6	470018597.9	5.8	43.6	4.2	101.0	30.0
89	11	7	470018612.9	5.0	40.7	3.3	161.4	24.5
89	11	11	470018600.7	5.6	52.8	4.0	119.1	28.3
89	11	12	470018611.7	5.6	55.2	3.6	147.3	27.1
89	11	16	470018615.5	6.2	44.2	4.5	165.8	30.8
89	11	17	470018617.5	5.5	39.9	3.8	175.5	29.6

TABLE 7.86
VLBI BASELINE EVOLUTION
FORTORDS TO HAYSTACK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	23	4225000766.8	14.4	94.5	11.0	166.2	36.4
89	10	23	4225000771.2	12.1	106.0	9.3	137.9	32.5 *
89	11	1	4225000758.2	12.4	117.1	16.4	61.8	37.7 *
89	11	2	4225000748.4	14.8	92.6	9.4	40.6	39.8 *
89	11	6	4225000746.0	13.3	94.5	16.8	128.9	39.2 *
89	11	7	4225000736.0	10.7	102.1	8.5	122.9	29.5 *
89	11	11	4225000764.8	11.6	103.4	16.7	75.9	35.8 *
89	11	12	4225000766.1	11.9	100.9	8.9	116.1	32.7 *
89	11	16	4225000759.7	12.6	97.7	17.0	110.5	37.6 *
89	11	17	4225000776.0	12.2	101.6	9.1	189.2	33.9 *

* WESTFORD - FORTORDS results mapped to HAYSTACK - FORTORDS

TABLE 7.87
VLBI BASELINE EVOLUTION
FORTORDS TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	462074953.9	4.5	7.3	6.4	173.3	42.2
88	11	9	462074944.2	3.6	9.8	5.0	80.7	30.1
89	2	2	462074936.2	4.1	15.2	5.3	147.9	37.0
89	2	3	462074953.4	3.5	5.0	4.4	118.4	30.0
89	5	10	462074964.4	4.2	18.0	5.5	140.2	34.8
89	5	11	462074957.7	4.2	8.9	5.7	186.6	39.9
89	10	23	462074984.1	4.8	71.6	6.1	185.4	31.0
89	11	1	462074980.5	4.9	61.9	4.8	99.1	33.5
89	11	2	462074975.2	5.8	65.7	6.1	115.5	39.7
89	11	6	462074983.7	4.3	87.3	5.7	91.2	31.1
89	11	7	462074975.6	3.6	77.5	4.9	155.2	25.7
89	11	11	462074987.8	4.3	74.9	5.7	125.0	30.3
89	11	12	462074981.7	4.1	71.3	5.5	159.8	29.1
89	11	16	462074974.3	4.7	68.8	6.0	161.5	32.1
89	11	17	462074976.9	4.4	77.0	5.4	183.7	31.5

TABLE 7.88
VLBI BASELINE EVOLUTION
FORTORDS TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	319006655.7	6.0	13.4	6.9	170.5	46.8
88	11	9	319006645.1	4.2	16.8	5.9	100.8	42.3

TABLE 7.89
VLBI BASELINE EVOLUTION
FORTORDS TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	23	147938858.1	7.2	-3.0	5.7	183.1	43.1
89	11	16	147938842.4	8.6	-10.7	7.7	321.9	56.9
89	11	17	147938852.9	7.2	-5.3	5.8	192.9	52.7

TABLE 7.90
VLBI BASELINE EVOLUTION
FORTORDS TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	197185404.6	6.3	22.5	6.0	172.4	44.7
89	11	6	197185349.6	7.0	-24.3	6.3	77.7	53.5
89	11	7	197185360.3	6.0	-13.1	5.5	140.7	46.3
89	11	11	197185349.2	7.1	-10.9	5.6	141.8	53.6
89	11	12	197185360.3	6.9	-17.3	5.9	147.4	50.0

TABLE 7.91
VLBI BASELINE EVOLUTION
FORTORDS TO QUINCY

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	1	382655480.7	6.1	55.5	6.7	85.8	48.4
89	11	2	382655478.0	7.7	48.8	6.9	126.1	56.4

TABLE 7.92
VLBI BASELINE EVOLUTION
FORTORDS TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	8	248717519.7	5.9	-26.6	5.4	168.3	43.2
88	11	9	248717522.6	6.1	-8.9	4.2	38.9	35.8
89	2	2	248717509.8	5.4	-2.9	4.5	151.4	39.0
89	2	3	248717518.0	4.2	-9.5	3.8	136.8	31.5
89	5	10	248717523.3	5.3	-24.7	4.4	133.9	36.1
89	5	11	248717511.4	5.0	-25.2	4.7	207.9	40.4
89	10	23	248717561.5	6.2	16.1	5.0	94.5	30.8
89	11	1	248717563.1	5.4	13.5	5.3	90.8	38.6
89	11	2	248717547.7	6.5	13.4	5.9	94.7	43.4
89	11	6	248717574.9	5.6	20.3	4.7	53.3	32.9
89	11	7	248717561.8	4.8	12.7	4.0	115.7	26.7
89	11	11	248717568.3	5.8	13.3	4.4	100.6	31.3
89	11	12	248717560.0	5.4	13.1	4.3	114.8	29.9
89	11	16	248717555.4	6.2	16.1	5.1	148.0	35.3
89	11	17	248717559.9	5.2	14.7	4.3	164.7	31.6

TABLE 7.93
VLBI BASELINE EVOLUTION
FORTORDS TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	23	4224718651.0	12.1	106.0	9.3	137.9	32.5
89	11	1	4224718638.0	12.4	117.1	16.4	61.8	37.7
89	11	2	4224718628.1	14.8	92.6	9.4	40.6	39.8
89	11	6	4224718625.8	13.3	94.5	16.8	128.9	39.2
89	11	7	4224718615.7	10.7	102.1	8.5	122.9	29.5
89	11	11	4224718644.6	11.6	103.4	16.7	75.9	35.8
89	11	12	4224718645.9	11.9	100.9	8.9	116.1	32.7
89	11	16	4224718639.5	12.6	97.7	17.0	110.5	37.6
89	11	17	4224718655.8	12.2	101.6	9.1	189.2	33.9

TABLE 7.94
VLBI BASELINE EVOLUTION
FTD 7900 TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	8	104737.2	3.5	.0	2.5	8.6	15.4

TABLE 7.95
VLBI BASELINE EVOLUTION
FTD 7900 TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	8	1313407338.2	3.8	-2.7	3.9	-8.4	17.2

TABLE 7.96
VLBI BASELINE EVOLUTION
FTD 7900 TO PIETOWN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	8	564691751.5	3.3	-3.6	2.7	-5.0	14.8

TABLE 7.97
VLBI BASELINE EVOLUTION
FTD 7900 TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	8	3134986751.0	6.3	-30.8	7.2	-45.7	22.7

TABLE 7.98
VLBI BASELINE EVOLUTION
GILCREEK TO GOLDVENU

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	8	3827523775.7	4.4	-7.7	14.3	-22.3	19.7

TABLE 7.99
VLBI BASELINE EVOLUTION
GILCREEK TO HALEAKAL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	6	25	4837174029.1	24.6	38.0	11.7	-49.5	54.4
88	7	1	4837174016.4	21.3	14.8	11.2	46.3	48.7
88	7	9	4837174046.6	9.7	20.0	18.9	-53.5	29.5

TABLE 7.100
VLBI BASELINE EVOLUTION
GILCREEK TO HOBART26

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	9	26	10953029891.5		43.1	-36.8	42.7	-137.2	52.7
89	11	25	10953029818.8		19.1	-2.5	42.1	-35.8	45.5
89	12	18	10953029819.6		21.2	3.4	19.4	-123.2	22.9
89	12	19	10953029808.1		18.3	-4.1	21.6	-146.5	25.8

TABLE 7.101
VLBI BASELINE EVOLUTION
GILCREEK TO NOBEY 6M

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	19	5522166149.1		30.4	-51.4	16.9	-50.1	62.7

TABLE 7.102
VLBI BASELINE EVOLUTION
GILCREEK TO PENTICTN

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	2374175681.5		16.6	-34.3	10.1	207.8	74.0
85	9	4	2374175667.6		10.7	-25.8	5.7	210.9	44.4

TABLE 7.103
VLBI BASELINE EVOLUTION
GILCREEK TO PRESIDIO

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	2	17	3396404687.5		9.7	-5.8	6.3	14.3	32.0
88	2	18	3396404679.1		10.5	-14.9	7.4	25.2	36.6
89	10	20	3396404652.2		21.0	23.6	9.0	55.9	56.4
89	10	23	3396404634.1		12.1	4.1	7.8	-3.6	37.9
89	11	16	3396404610.7		17.5	5.4	14.9	147.0	56.1
89	11	17	3396404642.8		16.3	-10.1	8.5	-10.8	49.4

TABLE 7.104
VLBI BASELINE EVOLUTION
GILCREEK TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	2	13	3352262251.4	8.7	9.3	7.3	-1.3	32.1
88	2	14	3352262236.8	11.5	12.0	13.5	65.8	37.0
88	11	8	3352262211.3	8.7	16.7	5.2	14.7	24.9
89	2	7	3352262201.0	12.9	-26.0	7.4	-27.7	37.1
89	11	6	3352262188.8	16.7	-4.8	14.1	-74.7	53.1
89	11	7	3352262159.2	14.1	-8.8	7.6	18.4	43.2
89	11	11	3352262180.5	15.7	7.8	13.6	17.2	51.0
89	11	12	3352262172.5	15.6	19.6	8.2	-5.3	49.4

TABLE 7.105
VLBI BASELINE EVOLUTION
GILCREEK TO QUINCY

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	1	3227111804.5	12.1	23.1	13.4	-22.4	43.1
89	11	2	3227111798.1	12.9	5.2	8.5	19.3	46.2

TABLE 7.106
VLBI BASELINE EVOLUTION
GILCREEK TO SESHAN25

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	4	9	6635555846.5	12.4	-14.7	27.1	71.6	34.4
88	7	16	6635555874.1	10.6	22.5	21.5	44.0	24.5
88	7	30	6635555871.5	12.9	-1.2	15.9	-29.9	24.5
88	7	31	6635555926.3	15.0	-26.7	13.1	-43.9	27.9
88	12	10	6635555878.4	9.1	40.1	26.4	126.1	31.0
89	1	13	6635555869.7	10.5	-35.6	14.6	35.9	24.8
89	2	18	6635555864.3	10.7	-44.1	26.7	41.9	34.2
89	3	26	6635555863.0	10.1	1.5	27.1	9.8	33.3
89	12	18	6635555830.8	12.4	-49.3	11.1	51.2	22.8

TABLE 7.107
VLBI BASELINE EVOLUTION
GILCREEK TO SHANGHAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	6	13	6619027667.9	75.9	-19.3	50.7	-73.3	170.4

TABLE 7.108
VLBI BASELINE EVOLUTION
GILCREEK TO YELLOWKN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	1631193648.5	7.6	23.9	8.0	174.4	45.5
85	9	4	1631193662.1	6.4	15.0	5.3	133.9	37.0

TABLE 7.109
VLBI BASELINE EVOLUTION
GOLDVENU TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
81	11	19	1302373944.9	5.7	25.5	82.8	55.3	237.9
82	6	21	1302373954.4	9.2	-3.5	83.1	-86.7	240.3
82	10	23	1302373952.7	7.1	-5.2	42.8	6.4	128.0

TABLE 7.110
VLBI BASELINE EVOLUTION
GOLDVENU TO MOJ 7288

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	12776768.6	2.2	-.4	2.3	-7.2	15.6

TABLE 7.111
VLBI BASELINE EVOLUTION
GOLDVENU TO NRAO 140

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
81	11	19	3257509152.6	7.3	60.1	80.0	-10.5	303.3

TABLE 7.112
VLBI BASELINE EVOLUTION
GOLDVENU TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
81	11	19	8024928059.0	19.3	23.3	506.4	-198.1	583.3
82	6	16	8024928138.0	27.0	-94.0	507.8	279.3	590.0
82	6	21	8024928060.3	34.3	156.6	507.2	246.2	588.0

TABLE 7.113
VLBI BASELINE EVOLUTION
GOLDVENU TO OVR 7853

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	258212541.5	2.7	.3	2.1	-6.1	11.7

TABLE 7.114
VLBI BASELINE EVOLUTION
GOLDVENU TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	8	27	580657656.8	17.3	-17.9	26.2	-181.2	109.4

TABLE 7.115
VLBI BASELINE EVOLUTION
GOLDVENU TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	8	27	633483760.2	16.0	-47.9	27.6	-34.1	103.2

TABLE 7.116
VLBI BASELINE EVOLUTION
GOLDVENU TO QUINCY

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	10	23	639556784.8	6.2	31.4	23.8	30.2	79.8

TABLE 7.117
VLBI BASELINE EVOLUTION
GOLDVENU TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	8	27	357563253.9	11.0	-106.1	17.6	57.9	87.6

TABLE 7.118
VLBI BASELINE EVOLUTION
GOLDVENU TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
81	11	19	3900445488.1	8.0	59.0	43.0	4.7	258.3
82	6	16	3900445528.2	12.4	-117.2	44.2	115.2	263.1
82	6	21	3900445490.8	15.6	-2.2	44.5	-21.0	263.9
88	7	8	3900445500.1	5.1	-4.7	13.8	44.4	21.6

TABLE 7.119
VLBI BASELINE EVOLUTION
GORF7102 TO HRAS 085

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	2618744920.3	6.5	-19.6	10.5	-17.7	28.5

TABLE 7.120
VLBI BASELINE EVOLUTION
GORF7102 TO MARPOINT

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	79845258.4	4.0	-4.3	3.3	-14.9	25.3
89	5	31	79845266.5	7.6	24.0	5.9	-.2	38.3

TABLE 7.121
VLBI BASELINE EVOLUTION
GORF7102 TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	11	3506892272.3	9.8	8.5	14.0	14.5	33.1
89	10	12	3506892284.7	9.6	-7.3	14.0	22.7	34.0

TABLE 7.122
VLBI BASELINE EVOLUTION
GORF7102 TO NRAO85 3

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	5 30	270278764.0	3.3	-10.8	4.3	-45.8	26.8
89	5 31	270278771.8	5.4	9.6	6.8	35.0	37.8

TABLE 7.123
VLBI BASELINE EVOLUTION
GORF7102 TO RICHMOND

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	5 30	1519989259.7	5.7	-10.2	6.5	-11.8	26.8
89	5 31	1519989245.5	9.1	14.0	5.9	-5.6	38.4
89	10 11	1519989250.0	7.4	-8.1	7.7	-10.7	29.9
89	10 12	1519989245.8	7.6	-3.8	7.7	42.4	30.9

TABLE 7.124
VLBI BASELINE EVOLUTION
GORF7102 TO WESTFORD

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	5 30	600947751.7	3.9	10.3	4.1	-4.4	24.9
89	5 31	600947750.7	6.9	-16.3	5.7	4.1	36.2
89	10 11	600947771.3	4.4	-1.3	5.3	-6.6	26.0
89	10 12	600947764.0	4.5	-8.6	5.4	11.0	27.0

TABLE 7.125
VLBI BASELINE EVOLUTION
GRASSE TO MOJAVE12

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	9 14	8701934665.9	21.4	-27.6	9.0	-41.0	34.9

TABLE 7.126
VLBI BASELINE EVOLUTION
GRASSE TO NOTO

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	9 12	1024494285.4	4.1	18.2	5.4	-6.8	23.9
89	9 13	1024494291.1	4.4	14.5	3.7	-37.0	20.6

TABLE 7.127
VLBI BASELINE EVOLUTION
GRASSE TO RICHMOND

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	9 14	7392007117.4	20.4	-14.7	10.9	-31.0	37.7

TABLE 7.128
VLBI BASELINE EVOLUTION
GRASSE TO WESTFORD

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	9 14	5890367617.7	12.8	-24.9	8.8	-8.0	32.2

TABLE 7.129
VLBI BASELINE EVOLUTION
GRASSE TO WETTZEI

		LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	9 12	753160842.8	3.3	-2.4	3.9	22.3	15.6
89	9 13	753160844.8	3.0	-5.6	2.5	16.8	12.7
89	9 14	753160839.6	4.1	-14.4	3.8	-13.0	23.8
89	9 16.	753160845.4	4.7	-14.2	4.2	32.8	17.5

TABLE 7.130
VLBI BASELINE EVOLUTION
HALEAKAL TO KAUAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	6	25	386841602.1	7.8	-23.9	8.3	-62.2	55.0
88	7	1	386841603.3	6.8	-10.1	7.3	-44.9	47.2
88	7	9	386841608.8	2.9	8.7	3.7	29.9	20.3

TABLE 7.131
VLBI BASELINE EVOLUTION
HALEAKAL TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	6	25	4090637524.3	19.2	70.4	11.8	76.4	56.5
88	7	1	4090637511.4	16.5	38.0	11.6	-42.0	50.9
88	7	9	4090637554.7	7.8	45.9	15.9	42.6	29.7

TABLE 7.132
VLBI BASELINE EVOLUTION
HARTRAO TO MEDICINA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	12	18	7453222484.4	21.8	1.2	89.9	-12.5	63.0
89	2	2	7453222450.0	22.2	12.7	17.0	-5.9	42.0
89	2	17	7453222517.8	18.0	-16.2	16.2	-165.1	37.8

TABLE 7.133
VLBI BASELINE EVOLUTION
HARTRAO TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	12	21	12260678930.7	48.8	3.6	47.6	-116.6	53.9

TABLE 7.134
VLBI BASELINE EVOLUTION
HARTRAO TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	1	15	8525165621.6	30.5	-9.2	33.4	11.6	54.4
86	2	11	8525165621.3	41.0	-28.7	23.7	-150.0	59.6
87	1	19	8525165607.8	33.0	-42.1	22.1	6.4	41.7
87	2	4	8525165590.3	21.4	-37.4	31.0	-30.6	42.5
88	1	12	8525165623.4	28.2	-37.0	17.5	-51.0	38.5

TABLE 7.135
VLBI BASELINE EVOLUTION
HATCREEK TO JPL MV1

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	789070042.1	5.5	-66.6	22.8	33.5	66.5
87	10	18	789069954.3	7.7	1.9	5.6	51.9	48.8

TABLE 7.136
VLBI BASELINE EVOLUTION
HATCREEK TO KODIAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	15	2870190265.0	12.2	-2.6	12.4	-49.0	47.5
87	7	17	2870190269.2	8.7	2.6	8.3	16.7	33.2

TABLE 7.137
VLBI BASELINE EVOLUTION
HATCREEK TO MAMMOTHL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	414535910.0	9.1	-7.8	12.6	-49.2	57.5

TABLE 7.138
VLBI BASELINE EVOLUTION
HATCREEK TO PVERDES

			LENGTH (mm)	ERROR	TRANSVERSE (mm)	ERROR	VERTICAL (mm)	ERROR
89	1	24	830152849.2	7.5	16.3	5.3	-.9	37.4
89	1	25	830152858.9	7.0	11.6	5.0	40.1	36.5

TABLE 7.139
VLBI BASELINE EVOLUTION
HATCREEK TO SANPAULA

			LENGTH (mm)	ERROR	TRANSVERSE (mm)	ERROR	VERTICAL (mm)	ERROR
89	1	28	745783179.2	5.8	19.8	4.4	60.3	33.9
89	1	29	745783193.4	5.3	22.4	4.5	-66.9	34.3

TABLE 7.140
VLBI BASELINE EVOLUTION
HATCREEK TO SNDPOINT

			LENGTH (mm)	ERROR	TRANSVERSE (mm)	ERROR	VERTICAL (mm)	ERROR
87	7	25	3229864755.4	545.3	-126.9	84.1	-648.8	2118.5

TABLE 7.141
VLBI BASELINE EVOLUTION
HATCREEK TO YAKATAGA

			LENGTH (mm)	ERROR	TRANSVERSE (mm)	ERROR	VERTICAL (mm)	ERROR
87	8	7	2569202482.9	15.3	5.1	12.8	22.3	57.8
87	8	13	2569202498.8	10.4	-16.2	10.0	63.0	44.7
87	8	14	2569202476.3	10.8	-9.7	10.3	39.5	45.8

TABLE 7.142
VLBI BASELINE EVOLUTION
HAYSTACK TO KODIAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	3	5466172795.4	14.9	-21.7	20.3	-52.6	41.3 *
88	7	4	5466172811.8	17.5	5.2	20.6	41.8	43.6 *
88	7	5	5466172816.6	14.6	9.7	10.1	-51.1	36.1 *
89	7	5	5466172834.7	18.6	-19.2	10.0	-52.4	41.0 *
89	7	6	5466172805.3	19.6	-14.0	7.2	-24.0	43.3
89	7	7	5466172810.7	17.6	-10.7	10.0	.7	41.9 *

* WESTFORD - KODIAK results mapped to HAYSTACK - KODIAK

TABLE 7.143
VLBI BASELINE EVOLUTION
HAYSTACK TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	20	4224649421.1	20.8	48.0	12.1	80.9	57.4 *
89	10	23	4224649413.7	16.1	29.1	10.9	6.4	41.8
89	10	23	4224649418.6	14.0	40.6	8.9	34.5	38.0 *
89	11	16	4224649367.8	19.8	18.2	17.6	195.6	55.2 *
89	11	17	4224649422.0	17.7	30.3	9.8	-6.5	48.1 *

* WESTFORD - PRESIDIO results mapped to HAYSTACK - PRESIDIO

TABLE 7.144
VLBI BASELINE EVOLUTION
HAYSTACK TO ROBLED32

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	5	5	5299699250.7	29.1	31.5	706.1	-126.2	176.9
83	5	5	5299699242.4	30.9	1.0	706.2	-130.4	178.5 *

* WESTFORD - ROBLED32 results mapped to HAYSTACK - ROBLED32

TABLE 7.145
VLBI BASELINE EVOLUTION
HAYSTACK TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	20	4229299751.9	10.0	82.9	9.2	39.4	28.1 *
89	10	23	4229299760.4	11.7	58.3	10.1	-70.0	29.4
89	10	23	4229299763.9	8.7	69.8	8.1	-41.5	24.7 *
89	11	1	4229299749.2	9.6	76.9	16.3	30.5	30.3 *
89	11	2	4229299738.7	9.7	66.8	8.8	54.9	26.5 *
89	11	6	4229299757.7	9.6	44.3	16.2	-70.2	31.2 *
89	11	7	4229299718.7	7.4	62.7	7.7	-7.6	21.9 *
89	11	11	4229299753.3	8.8	58.5	16.2	25.2	29.1 *
89	11	12	4229299749.6	8.9	64.9	7.8	-1.6	25.5 *
89	11	16	4229299734.9	11.2	65.2	16.5	36.3	34.5 *
89	11	17	4229299744.2	8.4	66.9	8.3	-27.1	24.9 *

* WESTFORD - VNDNBERG results mapped to HAYSTACK - VNDNBERG

TABLE 7.146
VLBI BASELINE EVOLUTION
HAYSTACK TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	21	4895243267.4	14.5	-45.0	9.3	132.6	38.3 *
88	7	23	4895243286.1	14.6	-39.3	17.8	84.4	41.1 *
89	7	24	4895243315.4	11.7	-33.5	18.4	38.6	34.8 *
89	7	25	4895243286.6	14.2	-40.6	8.9	44.8	35.5 *
89	7	26	4895243283.0	14.7	-19.5	6.0	65.7	35.5

* WESTFORD - YAKATAGA results mapped to HAYSTACK - YAKATAGA

TABLE 7.147
VLBI BASELINE EVOLUTION
HOBART26 TO KASHIMA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	9	26	8071140690.6	30.8	-104.6	31.4	117.9	52.4
89	11	25	8071140643.2	14.0	-82.6	30.6	41.8	35.9
89	12	18	8071140639.5	14.1	-81.2	12.5	93.8	22.1
89	12	19	8071140655.3	12.5	-102.1	14.9	81.8	24.0

TABLE 7.148
VLBI BASELINE EVOLUTION
HOBART26 TO KAUAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	9	26	8268576678.2	31.8	-105.8	32.8	164.5	51.2
89	11	25	8268576634.9	13.3	-115.0	32.0	38.8	37.4
89	12	18	8268576666.4	14.2	-100.0	14.9	87.3	22.0

TABLE 7.149
VLBI BASELINE EVOLUTION
HOBART26 TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	12	19	10845184295.4	18.6	93.7	22.1	143.3	26.0

TABLE 7.150
VLBI BASELINE EVOLUTION
HOBART26 TO SESHAN25

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	12	18	7965496535.2	17.0	-60.3	12.0	99.3	24.6

TABLE 7.151
VLBI BASELINE EVOLUTION
HOHENFRG TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	8257097577.4	21.2	-15.7	9.6	-35.0	33.5
89	6	26	8257097567.6	21.0	-25.6	8.5	-30.5	30.5

TABLE 7.152
VLBI BASELINE EVOLUTION
HOHENFRG TO NOTO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	1825225877.4	5.4	16.5	4.8	-32.3	24.6
89	6	23	1825225876.6	5.6	13.5	7.5	-22.4	22.6
89	6	24	1825225885.5	4.8	22.6	7.4	-56.8	18.2
89	6	25	1825225881.0	4.6	17.7	4.1	-49.7	18.1
89	6	26	1825225872.7	5.4	1.7	4.6	-3.5	26.1

TABLE 7.153
VLBI BASELINE EVOLUTION
HOHENFRG TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	7347945800.7	18.1	-11.6	9.0	-38.9	33.0
89	6	26	7347945800.3	18.8	-27.6	8.6	-73.5	32.1

TABLE 7.154
VLBI BASELINE EVOLUTION
HOHENFRG TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	5694164245.7	13.7	-17.7	7.7	.2	30.3
89	6	26	5694164265.5	13.4	-18.9	7.1	-48.2	29.0

TABLE 7.155
VLBI BASELINE EVOLUTION
HOHENFRG TO WETTZELL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	465777113.3	3.8	1.3	3.8	7.2	24.0
89	6	23	465777109.9	3.1	-.6	3.1	26.6	17.1
89	6	24	465777112.0	2.7	4.8	2.9	-8.4	14.2
89	6	25	465777113.7	2.6	5.1	2.1	21.1	14.6
89	6	26	465777116.3	3.7	-9.4	3.4	2.1	24.5

TABLE 7.156
VLBI BASELINE EVOLUTION
HRAS 085 TO JPL MV1

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	10	16	1391413541.0	15.3	-71.7	80.5	175.6	221.9
83	6	29	1391413610.6	6.8	-23.7	36.3	-45.3	100.5
87	10	18	1391413727.1	8.1	-.2	7.6	13.9	46.0

TABLE 7.157
VLBI BASELINE EVOLUTION
HRAS 085 TO KODIAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	6	4645400661.5	17.7	-15.9	7.8	-.3	50.2

TABLE 7.158
VLBI BASELINE EVOLUTION
HRAS 085 TO LEONRDOK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	24	957117024.4	4.7	-5.6	5.7	14.5	31.8

TABLE 7.159
VLBI BASELINE EVOLUTION
HRAS 085 TO MAMMOTHL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	1580143779.6	10.1	-.2	39.5	-115.8	128.9

TABLE 7.160
VLBI BASELINE EVOLUTION
HRAS 085 TO MARPOINT

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	10	18	2570813392.8	9.0	33.9	22.6	-7.0	82.2
83	8	29	2570813389.0	35.5	8.1	34.8	69.1	170.4
89	5	30	2570813361.3	4.6	-13.4	10.1	3.3	20.8

TABLE 7.161
VLBI BASELINE EVOLUTION
HRAS 085 TO MCD 7850

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	6	8125163.1	2.5	-.4	2.1	-8.6	12.6

TABLE 7.162
VLBI BASELINE EVOLUTION
HRAS 085 TO MEDICINA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	4	3	8604525615.5	258.8	7.2	21.0	-117.9	290.3
87	5	3	8604525464.7	32.0	34.9	8.3	-44.7	41.0
87	12	9	8604525526.9	21.3	-5.8	6.2	35.8	29.9
88	5	7	8604525640.2	33.6	-.6	7.9	-47.0	45.0
88	5	12	8604525564.9	25.3	-20.6	6.9	-23.4	34.0
88	5	17	8604525503.3	48.1	-8.1	11.8	5.9	63.1
88	8	5	8604525537.6	12.6	-14.3	6.5	-5.2	20.9
88	8	20	8604525550.5	12.2	.7	6.5	.7	20.5
88	10	29	8604525564.3	20.0	-18.1	9.6	7.6	33.8
88	11	28	8604525547.4	12.2	-20.8	6.6	14.9	19.2
89	2	2	8604525553.7	28.5	-2.6	17.6	-4.6	40.7
89	2	17	8604525602.3	24.8	-65.4	16.2	-22.0	35.3

TABLE 7.163
VLBI BASELINE EVOLUTION
HRAS 085 TO MILESMON

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	4	15	1751993827.8	8.2	-4.0	7.7	4.7	42.8

TABLE 7.164
VLBI BASELINE EVOLUTION
HRAS 085 TO NRAO85 3

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	2353779380.2	4.7	-8.8	9.4	-27.6	22.4

TABLE 7.165
VLBI BASELINE EVOLUTION
HRAS 085 TO PENTICTN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	2443354516.7	15.6	65.6	9.7	234.4	77.8
85	8	28	2443354545.9	22.1	36.2	11.1	-150.6	103.2
85	9	4	2443354512.6	11.6	63.0	5.9	131.2	53.9

TABLE 7.166
VLBI BASELINE EVOLUTION
HRAS 085 TO PIETOWN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	9	8	564620892.7	2.7	.9	2.3	-8.0	13.1
88	10	6	564620890.8	2.1	-4.2	2.6	-7.2	7.9
88	10	8	564620892.0	2.5	-3.0	2.2	-13.7	9.2

TABLE 7.167
VLBI BASELINE EVOLUTION
HRAS 085 TO PINFLATS

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	11	2	1223294522.8	11.1	-30.3	9.3	72.1	57.8
86	2	26	1223294538.7	9.8	-17.2	8.8	-58.6	72.5
86	4	10	1223294544.8	7.9	-30.6	8.3	24.3	57.4
86	11	1	1223294552.9	4.5	-22.1	6.0	-5.2	33.9
86	12	13	1223294558.6	5.4	-10.6	4.7	-68.0	33.7

TABLE 7.168
VLBI BASELINE EVOLUTION
HRAS 085 TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	3	13	1870585801.2	18.7	-34.5	10.4	36.8	87.1
85	10	19	1870585821.7	6.6	-29.4	5.5	-15.9	34.8
85	10	23	1870585824.6	8.5	-30.9	8.4	-131.9	48.1
87	2	6	1870585852.1	8.4	-13.1	6.3	-5.4	39.2

TABLE 7.169
VLBI BASELINE EVOLUTION
HRAS 085 TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	3	13	1921015694.2	14.3	-45.8	8.6	-84.3	65.3
85	10	19	1921015701.5	8.5	-48.7	6.3	-50.3	43.7

TABLE 7.170
VLBI BASELINE EVOLUTION
HRAS 085 TO ROBLED32

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	5	5	7975530242.7	44.3	98.3	701.2	-171.7	219.3

TABLE 7.171
VLBI BASELINE EVOLUTION
HRAS 085 TO YELLOWKN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	3572069877.2	16.5	13.5	12.5	212.5	52.1
85	9	4	3572069864.5	15.7	28.3	6.7	62.8	47.6

TABLE 7.172
VLBI BASELINE EVOLUTION
JPL MV1 TO MAMMOTHL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	387649690.3	9.1	-64.2	12.8	-81.2	60.5
84	4	9	387649728.0	17.1	-20.6	8.5	-54.4	122.1
84	10	22	387649675.5	16.5	-35.2	9.8	-352.9	113.5
86	10	22	387649657.8	6.4	-23.2	3.7	-38.5	42.1

TABLE 7.173
VLBI BASELINE EVOLUTION
JPL MV1 TO MON PEAK

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	10	16	218307738.1	8.4	10.7	16.5	-157.4	96.0

TABLE 7.174
VLBI BASELINE EVOLUTION
JPL MV1 TO PRESIDIO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	4	555228194.3	6.0	4.1	5.5	-59.1	37.7
88	11	5	555228202.2	6.8	17.7	5.8	73.3	43.2

TABLE 7.175
VLBI BASELINE EVOLUTION
JPL MV1 TO QUINCY

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	10	21	685704820.8	79.3	-61.4	40.6	-306.0	411.6

TABLE 7.176
VLBI BASELINE EVOLUTION
KASHIMA TO NOBEY 6M

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	19	197660883.9	11.1	-17.2	11.2	-7.0	58.2

TABLE 7.177
VLBI BASELINE EVOLUTION
KASHIMA TO SESHAN25

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	4	9	1875920098.9	7.2	.9	9.5	61.5	30.4
88	7	16	1875920115.0	5.2	-2.2	7.3	-.6	19.8
88	7	30	1875920122.7	6.7	-8.2	6.1	40.1	26.0
88	7	31	1875920120.8	7.3	-15.7	6.3	-87.7	27.2
88	12	10	1875920103.8	3.8	-15.7	8.0	37.1	16.4
89	1	13	1875920088.0	5.0	-26.8	5.7	11.4	20.3
89	2	18	1875920077.5	4.7	-24.3	8.6	-14.2	19.0
89	3	26	1875920102.9	4.8	-18.5	8.4	20.9	18.6
89	12	18	1875920062.7	4.8	-29.5	5.1	45.5	18.9

TABLE 7.178
VLBI BASELINE EVOLUTION
KASHIMA TO SHANGHAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	6	13	1852075226.8	34.8	-8.8	24.3	-44.9	188.4

TABLE 7.179
VLBI BASELINE EVOLUTION
KASHIMA TO WHTHORSE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	10	6047388095.1	23.8	7.4	12.9	161.4	47.0

TABLE 7.180
VLBI BASELINE EVOLUTION
KAUAI TO SESHAN25

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	4	9	7310294064.5	13.7	-26.0	29.8	31.7	35.6
88	7	16	7310294079.9	12.1	2.4	22.9	29.4	20.8
88	7	30	7310294094.1	15.4	-11.6	16.9	40.2	25.3
88	7	31	7310294148.8	17.2	-29.3	14.7	-10.1	26.8
88	12	10	7310294040.1	10.9	-12.6	28.9	137.1	31.4
89	1	13	7310294035.6	10.9	-37.5	15.5	32.9	22.7
89	2	18	7310294024.0	11.3	-61.4	28.9	65.5	32.4
89	3	26	7310294052.8	12.0	-10.0	29.4	45.2	33.3
89	12	18	7310293957.4	11.6	-76.1	13.0	133.4	18.1

TABLE 7.181
VLBI BASELINE EVOLUTION
KAUAI TO SHANGHAI

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	6	13	7290813138.9	68.9	32.8	28.8	86.6	181.7

TABLE 7.182
VLBI BASELINE EVOLUTION
KAUAI TO WHTHORSE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	8	10	4587139193.0	18.0	101.7	10.0	183.4	48.4

TABLE 7.183
VLBI BASELINE EVOLUTION
KODIAK TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	15	3574416159.5	11.8	-5.2	13.9	23.9	40.7
87	7	17	3574416151.2	9.3	7.7	9.7	15.0	31.2
88	7	3	3574416142.9	9.8	-14.1	14.0	-23.5	35.1
88	7	4	3574416142.6	11.0	-21.2	14.2	-52.7	39.0
88	7	5	3574416151.3	9.5	-6.9	7.8	13.2	31.0
89	7	5	3574416175.2	12.1	-25.8	7.8	41.6	42.4
89	7	7	3574416140.4	11.7	-13.1	7.7	15.8	41.9

TABLE 7.184
VLBI BASELINE EVOLUTION
KODIAK TO NOME

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	7	23	1024053314.4	16.7	-22.8	15.1	43.0	135.4
85	7	18	1024053282.3	14.5	-12.0	6.9	-148.4	84.3
86	7	22	1024053266.4	11.3	-14.8	7.0	-6.1	76.7
86	7	24	1024053274.7	10.8	-5.8	7.6	-75.8	65.7

TABLE 7.185
VLBI BASELINE EVOLUTION
KODIAK TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	7	23	3459022224.6	41.8	5.6	36.4	110.2	147.7
85	7	18	3459022133.8	30.4	-52.5	19.5	-199.0	124.3
86	7	22	3459022116.2	14.3	16.8	8.2	22.8	48.3
86	7	24	3459022091.1	13.9	10.0	13.8	-33.8	48.2

TABLE 7.186
VLBI BASELINE EVOLUTION
KODIAK TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	3	5466634641.9	14.9	-21.7	20.3	52.6	41.3
88	7	4	5466634658.3	17.5	5.2	20.6	-41.8	43.6
88	7	5	5466634663.2	14.6	9.7	10.1	51.1	36.1
89	7	5	5466634681.2	18.6	-19.2	10.0	52.4	41.0
89	7	7	5466634657.2	17.6	-10.7	10.0	-.7	41.9

TABLE 7.187
VLBI BASELINE EVOLUTION
KWAJAL26 TO SESHAN25

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	16	5191948392.9	12.7	4.8	17.7	93.0	30.4
88	7	30	5191948362.7	16.9	-2.0	14.0	9.9	38.6
88	7	31	5191948380.4	21.4	-7.5	13.4	-27.9	46.6

TABLE 7.188
VLBI BASELINE EVOLUTION
LEONRDOK TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	24	1854619798.8	6.4	-8.9	7.9	17.0	32.3

TABLE 7.189
VLBI BASELINE EVOLUTION
LEONRDOK TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	24	2205062324.5	6.4	-6.8	9.2	-7.8	27.9

TABLE 7.190
VLBI BASELINE EVOLUTION
MAMMOTHL TO MOJAVE12

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	315785208.3	8.5	18.3	10.6	48.2	55.0
84	4	9	315785200.5	12.7	35.5	7.6	121.4	81.7
84	10	22	315785203.6	11.6	27.9	6.7	168.4	73.0
86	10	22	315785221.6	4.0	3.6	2.9	3.7	27.4

TABLE 7.191
VLBI BASELINE EVOLUTION
MAMMOTHL TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	6	29	74255494.0	7.7	.4	6.6	70.7	46.4
84	4	9	74255479.3	7.9	15.7	7.8	67.0	74.8
84	10	22	74255480.4	9.7	10.2	8.9	215.3	83.0
86	10	22	74255496.4	3.5	-.3	3.9	89.7	37.6

TABLE 7.192
VLBI BASELINE EVOLUTION
MAMMOTHL TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	10	22	373995472.6	12.5	-93.2	8.6	227.0	81.4
86	10	22	373995440.5	4.5	-36.7	2.8	.4	29.2

TABLE 7.193
VLBI BASELINE EVOLUTION
MARPOINT TO NRA085 3

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	228306388.9	2.4	-4.9	3.4	-30.9	17.5
89	5	31	228306372.7	4.1	8.3	5.7	35.7	25.4

TABLE 7.194
VLBI BASELINE EVOLUTION
MARPOINT TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	6	18	6198441060.4	12.2	55.2	719.4	338.9	707.2
82	6	19	6198441056.1	14.7	120.0	719.3	339.8	707.2
82	10	18	6198441070.0	21.0	184.7	551.9	-16.6	547.2
83	8	29	6198441051.9	87.5	-37.4	495.2	-46.9	543.5

TABLE 7.195
VLBI BASELINE EVOLUTION
MARPOINT TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
82	6	18	3540824483.6	8.8	-120.4	71.8	-63.9	375.6
82	6	19	3540824494.2	16.9	-59.8	73.3	47.1	381.4
82	10	18	3540824485.4	11.9	7.6	55.4	47.0	290.2

TABLE 7.196
VLBI BASELINE EVOLUTION
MARPOINT TO RICHMOND

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	8	4	1442649258.9	13.0	.4	7.8	-139.5	45.7
87	8	5	1442649178.8	10.2	21.5	5.9	-76.2	42.4
87	8	8	1442649211.2	6.5	-1.0	5.4	-5.1	27.1
89	5	30	1442649212.4	4.5	-6.9	5.8	3.6	17.1
89	5	31	1442649194.8	7.7	-12.2	5.0	-4.6	26.2

TABLE 7.197
VLBI BASELINE EVOLUTION
MCD 7850 TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	6	1305462980.8	3.2	-.6	5.4	33.0	14.6

TABLE 7.198
VLBI BASELINE EVOLUTION
MCD 7850 TO PIETOWN

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	6	556665226.1	2.5	-3.8	2.7	1.4	11.8

TABLE 7.199
VLBI BASELINE EVOLUTION
MCD 7850 TO WESTFORD

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	10	6	3137645298.0	4.1	-26.6	12.3	-28.5	19.8

TABLE 7.200
VLBI BASELINE EVOLUTION
MEDICINA TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	5	3	1429470413.2	8.3	1.3	12.5	-20.2	43.2
87	12	8	1429470393.8	3.3	2.7	5.8	34.6	13.9
87	12	9	1429470404.6	4.3	-6.3	6.0	-35.5	21.4
88	6	17	1429470395.1	3.2	9.9	5.1	-.5	14.1
88	11	9	1429470394.5	2.7	5.6	3.4	-10.2	10.9
88	12	14	1429470397.2	2.1	-2.9	3.0	13.0	9.1
89	2	20	1429470399.9	2.0	-3.6	3.0	-24.3	8.1

TABLE 7.201
VLBI BASELINE EVOLUTION
MEDICINA TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	4	3	7658214991.0	232.0	-3.9	28.0	144.3	310.4
87	5	3	7658214894.6	31.2	26.7	9.2	18.1	44.5
87	12	9	7658214937.5	27.7	-21.7	8.5	-52.3	35.4
87	12	18	7658214929.9	28.4	-3.4	58.8	-35.3	76.4
88	5	7	7658215003.2	30.2	2.8	8.5	70.9	47.5
88	5	12	7658214951.0	24.1	-10.2	7.4	13.4	35.5
88	6	17	7658214924.3	13.9	46.6	11.1	1.2	32.0
88	8	20	7658214946.3	11.2	-.2	6.3	-26.7	20.5
88	8	31	7658214886.7	17.9	-53.3	14.3	-17.8	36.4
88	10	29	7658214944.1	18.3	-12.0	9.1	-.6	34.3
88	11	9	7658214895.6	13.7	9.0	13.4	29.5	28.8
88	11	28	7658214936.1	13.6	-9.2	6.7	-28.5	22.0
88	12	14	7658214944.8	8.6	-9.2	12.5	2.2	20.7

TABLE 7.202
VLBI BASELINE EVOLUTION
MEDICINA TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	4	3	6144872426.3	186.5	3.6	23.5	114.5	339.2
87	5	3	6144872358.7	19.8	23.1	6.4	-19.9	36.9
87	12	8	6144872367.1	6.6	5.4	10.0	-12.6	21.5
87	12	9	6144872370.3	11.5	-5.7	5.0	-60.1	23.9
87	12	18	6144872392.0	21.8	-9.7	56.0	-69.1	68.6
88	5	7	6144872412.3	22.4	.6	6.8	112.3	45.4
88	5	12	6144872384.6	16.1	-15.8	5.6	35.2	31.5
88	5	17	6144872370.2	31.6	-4.9	10.4	-48.3	63.1
88	6	17	6144872361.6	7.1	39.3	8.4	-8.2	21.7
88	8	5	6144872366.6	7.3	-8.8	5.1	13.9	17.7
88	8	20	6144872383.9	7.8	-3.3	5.3	-11.9	18.2
88	8	31	6144872358.7	6.1	-58.1	10.5	-64.1	20.2
88	10	29	6144872381.7	13.6	-10.0	8.4	-12.4	32.1
88	11	9	6144872365.7	6.9	5.5	10.7	3.2	20.0
88	11	28	6144872381.0	7.4	-12.0	5.5	-30.3	17.0
88	12	14	6144872381.2	4.7	-18.4	10.3	20.1	16.3
89	2	2	6144872367.3	17.7	6.1	13.6	29.0	42.1
89	2	17	6144872385.4	14.2	-37.5	12.0	85.4	34.5
89	2	20	6144872369.4	6.2	-10.2	10.1	-4.7	18.8

TABLE 7.203
VLBI BASELINE EVOLUTION
MEDICINA TO WETTZELL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	4	3	522461128.9	30.4	15.3	34.6	118.4	385.6
87	5	3	522461138.2	5.5	-4.0	10.9	-29.9	35.4
87	12	8	522461130.5	2.7	-2.4	5.1	-9.5	12.4
87	12	9	522461129.6	3.4	-.3	5.9	-.8	21.2
88	5	7	522461142.5	5.6	-5.5	10.8	98.3	44.0
88	5	12	522461129.9	3.9	-2.1	7.6	30.7	30.4
88	5	17	522461125.0	7.4	-11.5	13.2	-32.0	65.1
88	6	17	522461125.3	2.6	6.6	4.4	-.3	13.0
88	8	5	522461126.1	2.2	1.2	4.4	15.7	14.4
88	8	20	522461132.3	2.5	1.7	5.2	11.0	14.6
88	8	31	522461129.7	2.0	-.6	4.1	6.1	12.0
88	10	29	522461128.6	4.0	4.4	7.8	1.9	24.2
88	11	28	522461130.1	1.9	-1.8	3.7	-22.1	12.9
88	12	14	522461124.8	1.6	5.1	1.6	32.2	7.3
89	2	20	522461130.6	1.6	.1	1.7	-20.3	6.7

TABLE 7.204
VLBI BASELINE EVOLUTION
METSHOVI TO MOJAVE12

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	6	8149935242.5	29.9		-23.6	9.6	1.7	36.5

TABLE 7.205
VLBI BASELINE EVOLUTION
METSHOVI TO ONSALA60

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	5	784441965.1	4.0		-8.5	4.1	-3.5	23.9
89	7	6	784441969.4	6.5		-4.2	7.0	-11.1	40.1
89	7	8	784441947.6	5.5		6.9	6.4	-30.0	31.2
89	7	9	784441967.9	4.5		11.1	5.2	4.2	24.9

TABLE 7.206
VLBI BASELINE EVOLUTION
METSHOVI TO RICHMOND

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	6	7758613738.3	28.7		-20.5	9.3	12.4	41.0

TABLE 7.207
VLBI BASELINE EVOLUTION
METSHOVI TO WESTFORD

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	6	6059189109.9	21.6		-13.7	8.4	.8	38.5

TABLE 7.208
VLBI BASELINE EVOLUTION
METSHOVI TO WETTZELL

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	5	1433414941.6	5.3	-15.3	4.6	17.5	24.2
89	7	6	1433414946.3	6.2	-6.0	6.8	12.3	38.0
89	7	8	1433414934.5	6.7	.0	7.5	-49.9	30.6
89	7	9	1433414942.5	5.4	17.6	6.9	27.5	24.3

TABLE 7.209
VLBI BASELINE EVOLUTION
MILESMON TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	4	15	1534074217.7	8.0	-.2	7.9	8.7	42.6

TABLE 7.210
VLBI BASELINE EVOLUTION
MILESMON TO WESTFORD

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	4	15	2722126743.4	10.7	-9.6	12.8	-24.4	48.7

TABLE 7.211
VLBI BASELINE EVOLUTION
MOJ 7288 TO MOJAVE12

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	11	1	358197.1	1.6	2.0	2.3	.0	14.9

TABLE 7.212
VLBI BASELINE EVOLUTION
MOJ 7288 TO OVR 7853

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	11	1	245751410.6	2.9	1.1	2.4	1.1	16.4

TABLE 7.213
VLBI BASELINE EVOLUTION
MOJ 7288 TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	245135040.2	2.7	3.4	2.3	-8.5	16.4

TABLE 7.214
VLBI BASELINE EVOLUTION
MOJAVE12 TO NOBEY 6M

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	19	8216104517.5	44.4	-68.7	20.6	-65.2	55.1

TABLE 7.215
VLBI BASELINE EVOLUTION
MOJAVE12 TO NOTO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	9422863876.9	17.8	-1.8	9.5	3.7	30.7
89	6	26	9422863848.6	17.2	-24.4	8.9	26.0	26.6
89	8	30	9422863868.4	21.2	24.7	9.9	-11.3	31.1
89	9	4	9422863873.3	18.0	-47.2	9.0	5.4	26.1

TABLE 7.216
VLBI BASELINE EVOLUTION
MOJAVE12 TO NRAO 140

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	11	1	3262601940.2	3.9	-26.5	12.1	-.8	18.2

TABLE 7.217
VLBI BASELINE EVOLUTION
MOJAVE12 TO OCOTILLO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	3	3	299368587.5	31.8	74.5	24.7	1714.9	202.1
85	1	15	299368625.0	9.3	91.3	5.6	1498.1	69.9
85	3	4	299368642.1	5.2	72.3	3.2	1342.5	42.5

TABLE 7.218
VLBI BASELINE EVOLUTION
MOJAVE12 TO OVR 7853

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	11	1	245893864.4	2.3	2.9	1.9	1.0	9.4

TABLE 7.219
VLBI BASELINE EVOLUTION
MOJAVE12 TO PIETOWN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	9	8	809730822.7	2.6	3.2	2.7	3.5	14.5
88	10	6	809730816.7	1.7	3.1	3.5	-31.8	9.0
88	10	8	809730829.3	2.0	2.9	2.6	3.7	10.0

TABLE 7.220
VLBI BASELINE EVOLUTION
MOJAVE12 TO SEATTLE1

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	8	27	1439349364.6	8.2	7.8	5.7	34.3	44.8

TABLE 7.221
VLBI BASELINE EVOLUTION
MOJAVE12 TO SNDPOINT

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	7	25	3916865473.2	663.1	-116.4	83.9	-545.3	2084.1
88	7	11	3916865277.2	12.2	-21.1	9.8	-80.5	37.4
88	7	12	3916865271.6	11.2	-10.1	9.7	-71.9	34.5
88	7	13	3916865268.2	12.0	7.4	15.5	-77.6	38.5
89	7	13	3916865225.3	11.3	-19.3	15.3	27.2	36.8
89	7	14	3916865265.4	10.6	-28.1	15.1	1.3	35.6
89	7	15	3916865279.7	11.4	-19.7	7.9	-44.5	34.4

TABLE 7.222
VLBI BASELINE EVOLUTION
MOJAVE12 TO SOURDOGH

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	20	3577769383.9	13.4	-1.4	9.1	-26.4	45.9
87	8	21	3577769351.0	11.8	9.0	9.0	43.7	39.1
88	7	27	3577769371.2	10.3	29.1	7.5	-4.8	32.8
88	7	28	3577769401.4	12.0	28.5	13.8	-64.3	38.6
88	7	29	3577769364.1	12.5	37.6	14.0	-17.4	41.6
89	8	1	3577769381.7	8.9	-4.8	7.2	16.4	30.6
89	8	2	3577769387.9	8.5	10.3	13.8	8.6	30.8
89	8	3	3577769361.6	9.7	5.6	13.9	88.7	34.7

TABLE 7.223
VLBI BASELINE EVOLUTION
MOJAVE12 TO TROMSONO

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	31	7344759270.6	15.5	-3.6	8.1	45.8	27.7

TABLE 7.224
VLBI BASELINE EVOLUTION
MOJAVE12 TO WHTHORSE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	8	3	3076518285.6	9.2	-33.7	12.2	-57.0	34.3
88	8	4	3076518271.6	8.9	-27.9	6.8	-80.2	31.4
88	8	5	3076518272.7	9.6	-15.2	5.1	-50.8	33.6
89	8	8	3076518237.9	7.1	-15.7	11.9	79.1	30.8
89	8	9	3076518253.3	8.3	-6.1	6.4	42.1	32.3

TABLE 7.225
VLBI BASELINE EVOLUTION
MOJAVE12 TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	8	13	3273878597.7	9.3	-26.7	12.1	11.2	34.3
87	8	14	3273878594.4	10.4	-9.9	12.3	35.5	40.8
88	7	21	3273878575.7	9.2	-91.2	8.0	99.7	32.8
88	7	22	3273878592.5	13.0	-96.1	8.2	154.3	43.7
88	7	23	3273878601.0	10.4	-93.0	12.9	83.8	36.6
89	7	24	3273878642.3	7.8	-97.8	12.7	43.0	31.2
89	7	25	3273878624.5	9.2	-104.1	6.8	97.6	33.6

TABLE 7.226
VLBI BASELINE EVOLUTION
NOME TO SNDPOINT

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	7	14	1060002846.9	31.5	-47.9	25.8	157.3	183.2
85	7	25	1060002872.5	8.4	-8.8	6.5	-21.4	53.4
86	7	31	1060002876.8	8.6	-7.2	5.1	115.2	57.4

TABLE 7.227
VLBI BASELINE EVOLUTION
NOTO TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	3	2280154885.9	2.8	-7.2	8.8	25.8	13.1
89	9	4	2280154894.2	4.7	-4.0	4.9	-3.6	16.8

TABLE 7.228
VLBI BASELINE EVOLUTION
NOTO TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	21	8115263557.5	14.8	-5.8	10.7	-3.6	28.2
89	6	26	8115263548.0	15.4	-24.7	10.3	-70.5	26.7
89	8	30	8115263533.9	17.6	5.1	11.5	17.9	30.3

TABLE 7.229
VLBI BASELINE EVOLUTION
NOTO TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	3	6744637376.6	7.2	-20.9	24.9	-4.9	30.1
89	6	21	6744637341.0	11.1	-8.9	8.9	33.0	25.0
89	6	26	6744637358.2	10.3	-19.8	8.5	-43.7	22.6
89	8	30	6744637357.2	12.2	8.3	9.2	18.1	26.9
89	9	4	6744637374.5	11.4	-35.6	8.6	-27.8	22.0

TABLE 7.230
VLBI BASELINE EVOLUTION
NOTO TO WETZELL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	6	3	1371101057.3	2.1	2.1	5.4	4.8	9.7
89	6	21	1371101057.9	3.8	14.9	3.5	39.8	16.0
89	6	23	1371101058.2	4.0	13.2	5.7	49.6	17.0
89	6	24	1371101068.3	3.7	16.9	5.6	49.2	14.3
89	6	25	1371101057.7	3.3	12.6	3.2	70.8	13.2
89	6	26	1371101053.6	3.9	11.2	3.4	5.5	15.1
89	8	30	1371101047.6	4.1	13.4	3.9	22.8	18.2
89	9	1	1371101058.3	3.6	14.1	5.7	39.6	14.0
89	9	2	1371101060.0	4.0	9.1	5.9	40.6	17.8
89	9	4	1371101059.1	3.7	4.2	3.9	4.4	15.4
89	9	12	1371101059.0	3.9	20.2	6.0	28.2	21.4
89	9	13	1371101067.1	4.3	14.4	3.8	53.3	19.2

TABLE 7.231
VLBI BASELINE EVOLUTION
NRAO 140 TO ONSALA60

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
81	11	18	6319317550.3	29.1	-12.2	734.3	-407.1	709.6
81	11	19	6319317556.1	10.8	-81.7	712.3	-199.7	704.8
82	12	15	6319317598.8	20.9	221.0	711.7	-50.3	703.1
82	12	16	6319317520.9	18.8	262.9	711.6	25.3	702.2

TABLE 7.232
VLBI BASELINE EVOLUTION
NRAO85 3 TO RICHMOND

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	1419169134.1	4.7	-5.8	5.8	35.0	19.6
89	5	31	1419169123.7	7.2	.4	4.4	-41.0	25.1

TABLE 7.233
VLBI BASELINE EVOLUTION
NRAO85 3 TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	5	30	845216068.6	3.3	1.5	4.3	41.0	18.0
89	5	31	845216059.4	5.2	-2.2	4.9	-31.2	23.4

TABLE 7.234
VLBI BASELINE EVOLUTION
OCOTILLO TO OVRO 130

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	3	4	542313245.5	7.2	72.3	4.4	-1394.6	53.5

TABLE 7.235
VLBI BASELINE EVOLUTION
OCOTILLO TO PVERDES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
85	3	4	264927264.5	5.7	-46.3	6.2	-1379.7	62.2

TABLE 7.236
VLBI BASELINE EVOLUTION
OCOTILLO TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	3	3	487851075.8	34.6	-114.3	38.5	-1763.9	271.0
85	1	15	487851082.2	10.8	-45.4	8.5	-1472.1	73.9
85	3	4	487851110.8	6.2	-73.6	4.7	-1267.5	44.9

TABLE 7.237
VLBI BASELINE EVOLUTION
ONSALA60 TO ROBLED32

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
83	5	5	2204783307.6		13.1	12.3	402.5	97.7	218.7

TABLE 7.238
VLBI BASELINE EVOLUTION
ONSALA60 TO TROMSONO

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
89	7	30	1406156781.6		5.9	-1.5	5.2	-.1	27.6
89	7	31	1406156765.0		6.1	8.1	4.7	53.1	25.6
89	8	1	1406156749.2		5.5	1.7	4.7	-4.4	24.6
89	8	2	1406156769.2		5.5	-3.0	6.8	23.2	25.7

TABLE 7.239
VLBI BASELINE EVOLUTION
OVR 7853 TO OVRO 130

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
87	11	1	991123.1		1.6	-.5	2.4	-9.5	12.3

TABLE 7.240
VLBI BASELINE EVOLUTION
OVRO 130 TO PVERDES

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
83	11	12	387094608.4		22.4	-79.1	25.6	5.2	123.1
85	3	4	387094557.5		7.2	-57.7	4.2	20.8	61.4

TABLE 7.241
VLBI BASELINE EVOLUTION
OVRO 130 TO SANPAULA

				LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
83	8	31	322080185.7		11.8	-107.4	21.1	41.2	82.6

TABLE 7.242
VLBI BASELINE EVOLUTION
PBLOSSOM TO SANPAULA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	2	8	99880794.4	7.2	-9.4	10.7	-56.7	70.5

TABLE 7.243
VLBI BASELINE EVOLUTION
PENTICTN TO YELLOWKN

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	24	1495292882.9	14.3	-79.5	8.0	-27.7	85.1
85	9	4	1495292890.7	10.1	-54.7	5.1	-73.7	56.5

TABLE 7.244
VLBI BASELINE EVOLUTION
PIETOWN TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	9	8	3262799686.1	4.2	.8	5.8	-8.4	14.7
88	10	6	3262799675.3	3.1	-25.7	12.6	-32.0	17.2
88	10	8	3262799689.8	5.0	-30.9	6.8	-43.1	18.4

TABLE 7.245
VLBI BASELINE EVOLUTION
PINFLATS TO PVERDES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	3	25	180972818.3	5.8	3.4	7.8	19.0	46.6
87	12	8	180972822.9	4.8	-4.2	7.0	-42.3	43.1
88	2	5	180972815.7	5.4	-4.5	7.7	49.2	52.0

TABLE 7.246
VLBI BASELINE EVOLUTION
PLATTVIL TO VERNAL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	3	30	412425203.0	4.1	-4.2	5.7	115.1	39.9

TABLE 7.247
VLBI BASELINE EVOLUTION
PRESIDIO TO PT REYES

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	8	27	53727229.2	13.4	-27.2	10.5	147.8	97.9
85	3	13	53727236.1	9.4	-6.5	9.8	-120.5	97.7
85	10	19	53727233.4	4.3	-13.9	5.0	-32.6	42.3

TABLE 7.248
VLBI BASELINE EVOLUTION
PRESIDIO TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	20	4224409678.4	20.8	48.0	12.1	-80.9	57.4
89	10	23	4224409675.9	14.0	40.6	8.9	-34.5	38.0
89	11	16	4224409625.1	19.8	18.2	17.6	-195.6	55.2
89	11	17	4224409679.3	17.7	30.3	9.8	6.5	48.1

TABLE 7.249
VLBI BASELINE EVOLUTION
PRESIDIO TO YUMA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	2	6	922582255.5	7.0	-16.7	5.2	48.9	43.7

TABLE 7.250
VLBI BASELINE EVOLUTION
PT REYES TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	6	4248545115.0	18.6	38.0	17.0	51.1	52.4
89	11	7	4248545075.5	15.6	59.0	8.8	-10.9	42.9
89	11	11	4248545100.5	17.3	49.2	16.9	-57.7	50.8
89	11	12	4248545107.3	17.2	56.1	9.3	-25.3	46.9

TABLE 7.251
VLBI BASELINE EVOLUTION
PT REYES TO YUMA

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
87	10	24	975980358.2		10.6	-13.2	8.3	-49.5	58.1

TABLE 7.252
VLBI BASELINE EVOLUTION
QUINCY TO WESTFORD

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	11	1	4023819284.6		14.0	26.1	15.9	-15.4	43.0
89	11	2	4023819265.9		15.8	5.2	9.4	-77.3	44.7

TABLE 7.253
VLBI BASELINE EVOLUTION
RICHMOND TO TROMSONO

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	31	7249939432.0		16.4	-3.7	7.4	1.5	28.4

TABLE 7.254
VLBI BASELINE EVOLUTION
ROBLED32 TO WESTFORD

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
83	5	5	5300462998.4		30.9	1.0	706.2	130.4	178.5

TABLE 7.255
VLBI BASELINE EVOLUTION
SEATTLE1 TO WESTFORD

				LENGTH		TRANSVERSE		VERTICAL	
				(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
86	8	27	3895645968.1		14.2	22.5	9.9	17.2	55.9

TABLE 7.256
VLBI BASELINE EVOLUTION
SNDPOINT TO VNDNBERG

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
84	7	14	3763664156.6	52.0	86.4	30.4	-15.8	199.5
85	7	25	3763664097.2	14.8	55.3	14.8	48.1	49.3
86	7	31	3763664031.6	16.1	12.6	8.9	-107.0	51.5

TABLE 7.257
VLBI BASELINE EVOLUTION
SNDPOINT TO WESTFORD

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	7	12	5963589386.3	18.2	-6.4	11.5	117.3	40.6
88	7	13	5963589382.8	19.3	6.0	21.7	141.1	44.5
89	7	13	5963589332.3	16.7	-27.2	22.5	20.7	40.2
89	7	14	5963589379.4	15.7	-32.9	22.2	87.7	38.3
89	7	15	5963589399.5	16.5	-18.9	10.1	93.9	34.3

TABLE 7.258
VLBI BASELINE EVOLUTION
SOURDOGH TO WESTFORD

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
88	7	27	4992696126.4	13.8	36.1	8.6	-7.4	35.5
88	7	28	4992696160.3	16.6	40.5	18.7	91.4	44.9
88	7	29	4992696119.3	16.3	46.1	18.8	39.0	43.7
89	8	1	4992696138.1	12.0	9.8	9.1	23.1	31.1
89	8	2	4992696148.2	11.4	27.7	18.8	26.3	33.9
89	8	3	4992696131.5	13.0	9.8	18.9	-63.4	37.5

TABLE 7.259
VLBI BASELINE EVOLUTION
SOURDOGH TO WHTHORSE

			LENGTH (mm) ERROR		TRANSVERSE (mm) ERROR		VERTICAL (mm) ERROR	
84	8	7	591316591.8	17.9	39.4	15.0	39.2	148.0
86	8	18	591316580.7	5.3	3.3	5.4	80.6	45.7
86	8	20	591316574.6	6.2	-8.5	5.2	29.6	53.2

TABLE 7.260
VLBI BASELINE EVOLUTION
SOURDOGH TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	7	31	329299275.7	5.8	10.7	5.0	147.0	53.8
85	8	5	329299240.4	5.3	-2.4	4.0	95.4	46.8
86	8	11	329299205.7	6.6	3.8	4.8	22.2	53.6
86	8	13	329299191.7	7.5	6.3	4.9	36.8	66.3

TABLE 7.261
VLBI BASELINE EVOLUTION
TROMSONO TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	31	5474070355.6	11.2	8.3	6.5	-36.8	26.3

TABLE 7.262
VLBI BASELINE EVOLUTION
TROMSONO TO WETTZELL

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	7	30	2296324605.7	7.3	2.9	6.4	-3.6	28.1
89	7	31	2296324576.0	7.1	-3.7	5.4	-15.6	25.4
89	8	1	2296324568.4	7.2	-3.5	5.9	17.7	24.7
89	8	2	2296324591.7	6.9	-.1	9.8	-14.9	26.6

TABLE 7.263
VLBI BASELINE EVOLUTION
VERNAL TO VNDNBERG

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	20	1165722332.5	4.5	32.2	5.6	1.1	22.0

TABLE 7.264
VLBI BASELINE EVOLUTION
VERNAL TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	4	25	3132148590.4	10.8	-3.9	13.8	-56.8	37.0
89	4	26	3132148571.6	11.1	-8.1	7.3	-43.1	34.1

TABLE 7.265
VLBI BASELINE EVOLUTION
VERNAL TO YUMA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	10	20	917552143.9	5.6	-3.8	5.0	-3.8	29.6

TABLE 7.266
VLBI BASELINE EVOLUTION
VNDNBERG TO WESTFORD

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
89	10	20	4228947341.6	10.0	82.9	9.2	-39.4	28.1
89	10	23	4228947353.6	8.7	69.8	8.1	41.5	24.7
89	11	1	4228947338.9	9.6	76.9	16.3	-30.5	30.3
89	11	2	4228947328.4	9.7	66.8	8.8	-54.9	26.5
89	11	6	4228947347.4	9.6	44.3	16.2	70.2	31.2
89	11	7	4228947308.4	7.4	62.7	7.7	7.6	21.9
89	11	11	4228947343.0	8.8	58.5	16.2	-25.2	29.1
89	11	12	4228947339.3	8.9	64.9	7.8	1.6	25.5
89	11	16	4228947324.6	11.2	65.2	16.5	-36.3	34.5
89	11	17	4228947333.9	8.4	66.9	8.3	27.1	24.9

TABLE 7.267
VLBI BASELINE EVOLUTION
VNDNBERG TO WHTHORSE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	8	7	3058395745.3	40.8	-60.9	18.1	31.3	135.5
86	8	18	3058395604.8	11.4	32.6	11.9	91.8	40.8
86	8	20	3058395622.8	13.4	18.4	7.6	-20.3	47.3

TABLE 7.268
VLBI BASELINE EVOLUTION
VNDNBERG TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
84	7	31	3214772137.7	19.5	-51.7	20.5	213.1	77.7
85	8	5	3214772157.2	12.1	-35.6	7.8	48.0	44.2
86	8	11	3214772163.4	14.6	1.8	9.3	65.2	51.9
86	8	13	3214772199.7	17.1	7.5	12.9	34.0	61.6

TABLE 7.269
VLBI BASELINE EVOLUTION
WESTFORD TO WHTHORSE

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	8	3	4511164160.0	13.0	-24.2	17.4	-42.2	37.8
88	8	4	4511164137.3	11.9	-32.9	9.0	-97.7	33.9
89	8	8	4511164104.9	10.6	-12.7	16.8	105.3	33.0
89	8	9	4511164119.5	12.3	-2.6	7.8	18.9	32.3

TABLE 7.270
VLBI BASELINE EVOLUTION
WESTFORD TO YAKATAGA

			LENGTH		TRANSVERSE		VERTICAL	
			(mm)	ERROR	(mm)	ERROR	(mm)	ERROR
88	7	21	4895738300.9	14.5	-45.0	9.3	132.6	38.3
88	7	23	4895738319.6	14.6	-39.3	17.8	84.4	41.1
89	7	24	4895738348.9	11.7	-33.5	18.4	38.6	34.8
89	7	25	4895738320.1	14.2	-40.6	8.9	44.8	35.5

8.0 SITE COORDINATES

Tables 8.01 through 8.79 present the geocentric, Cartesian site positions by session in the VLBI reference frame. The user is reminded that the position at a particular epoch is relative to the (arbitrary) reference station for that session and that different observing sessions having unrelated observing networks will have different reference stations. Seventy nine of the 80 stations and/or sites appearing in Tables 1.1 and 1.2 are tabulated. HAYSTACK does not appear as it is always the reference station in each session in which it participates. Tables 8.01 through 8.79 are only available in the machine-readable version.

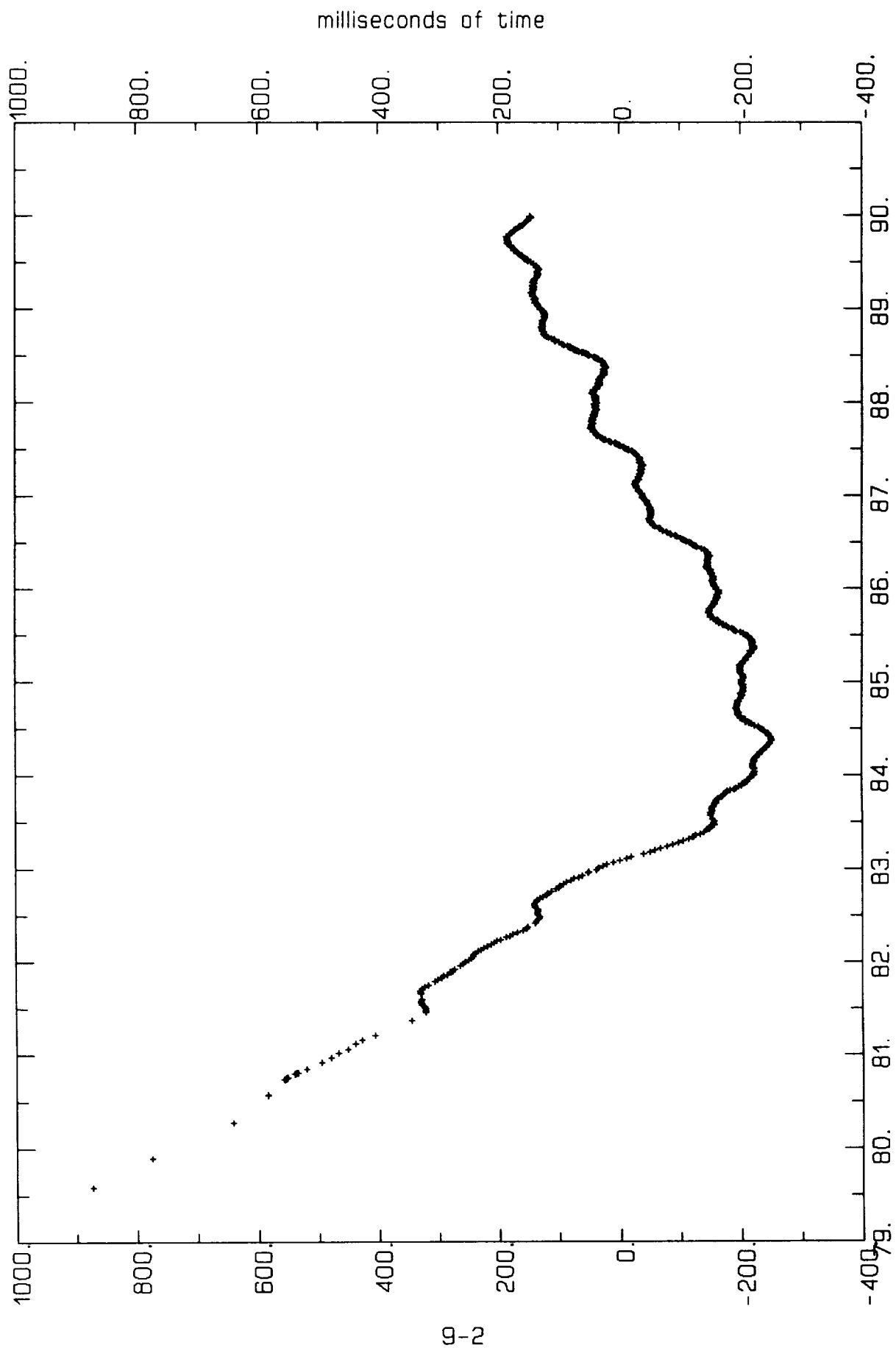
9.0 EARTH ROTATION RESULTS FROM SOLUTION GLB658

Plot 9-2 shows the value of UT1-TAI in milliseconds of time for the period from 1979 through 1989 with a linear term removed. This term was determined by least squares to have a slope of approximately -555 msec/yr. Formal errors of the points are of the order 30 to 300 microseconds. Error bars have been omitted for clarity. Plot 9-3 shows the pole in milliarcseconds for the period August 3, 1979 through February 24, 1984 (upper plot) and February 25, 1984 through December 29, 1989 (lower plot). Formal errors of the pole components are of the order 100 to 300 milliarcsecond. Once again, error bars have been omitted for clarity. The UT1-TAI and pole plots include all relevant data (fixed station CDP, POLARIS, and IRIS).

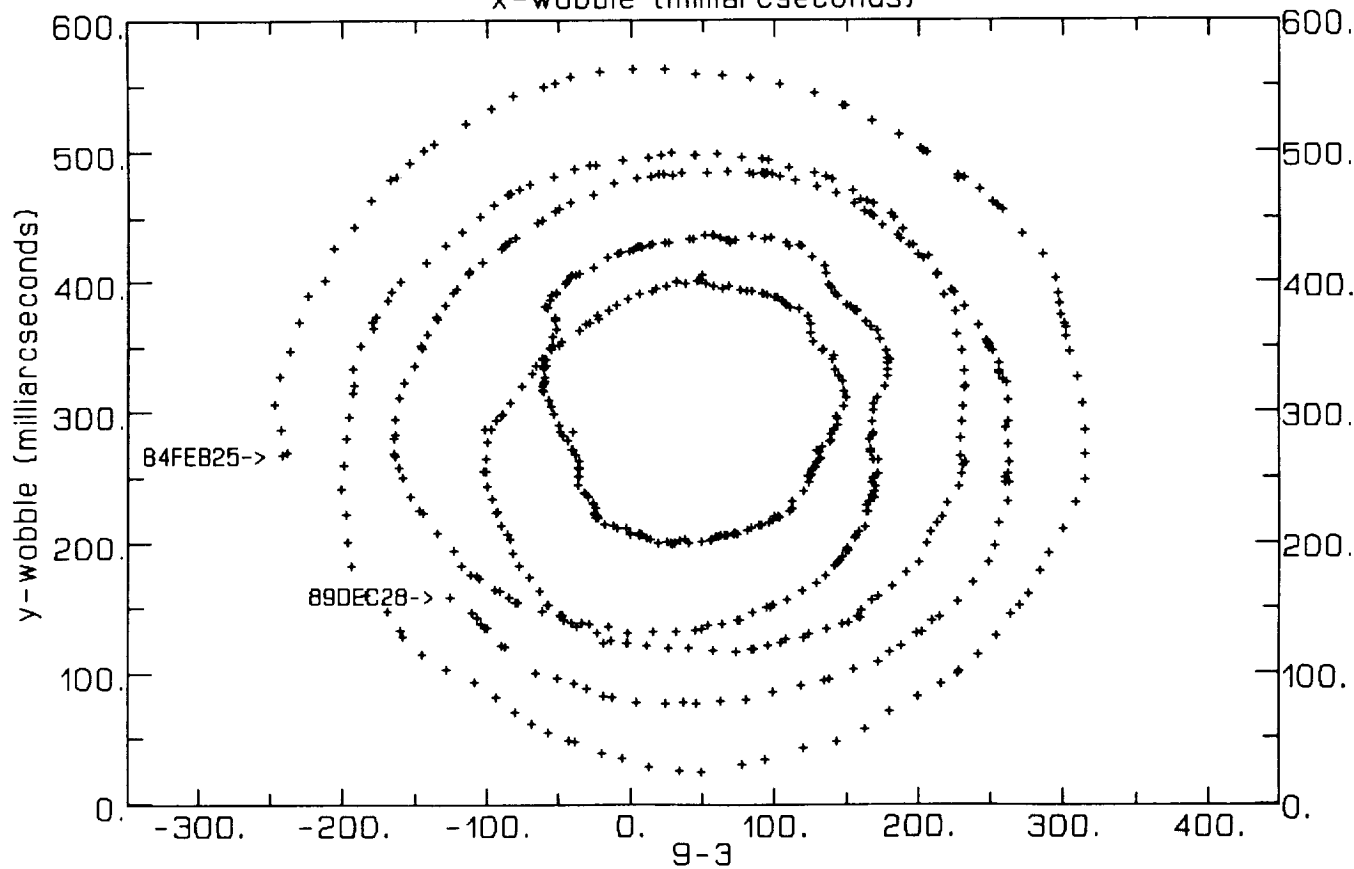
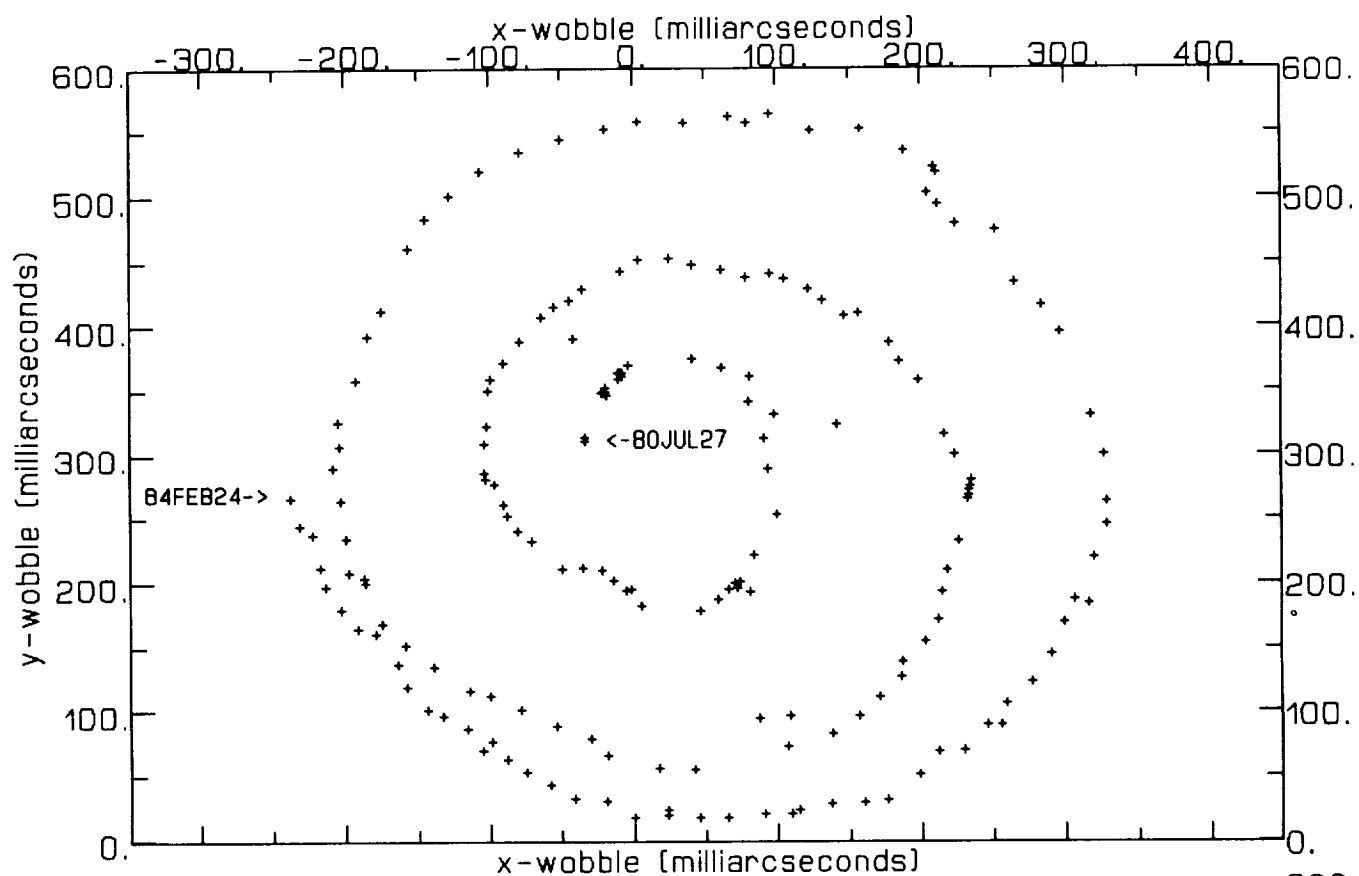
Plot 9-4 shows the nutation offsets $\delta(\epsilon)$ and $\delta(\psi) \sin(\epsilon)$ from the IAU 1980 nutation series, estimated in solution GLB658 for the period 1979 through 1989. The longitude values have been multiplied by the sine of the obliquity of the ecliptic for plotting only. The values of the longitude and obliquity are in units of milliarcseconds, with formal errors of the order of 0.8 to 3 milliarcseconds in longitude and 0.3 to 1.3 milliarcseconds in obliquity. Error bars have been omitted for clarity.

The actual data plotted in 9-2 (without the linear term removed) through 9-4 (unscaled) are available with uncertainties in the machine-readable version in a modified IERS format. The tabulated values in machine-readable form also include the formal errors, the weighted rms delay in picoseconds for the corresponding session, and the correlations among the Earth orientation and nutation parameters. The last correlation is followed by the number of observations for the session used in the solution, a code describing the type of session, CDP, POLARIS, IRIS, etc., and the corresponding database name.

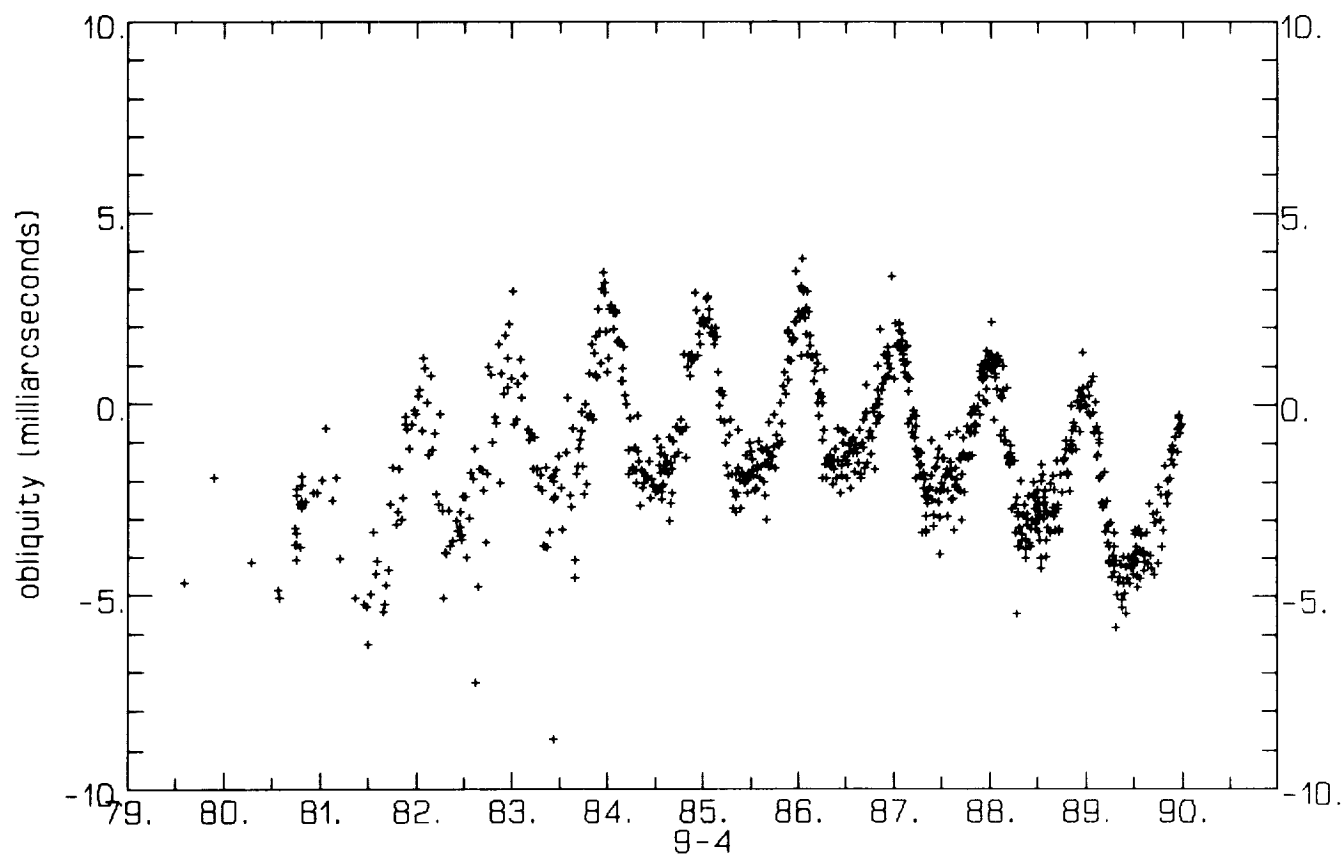
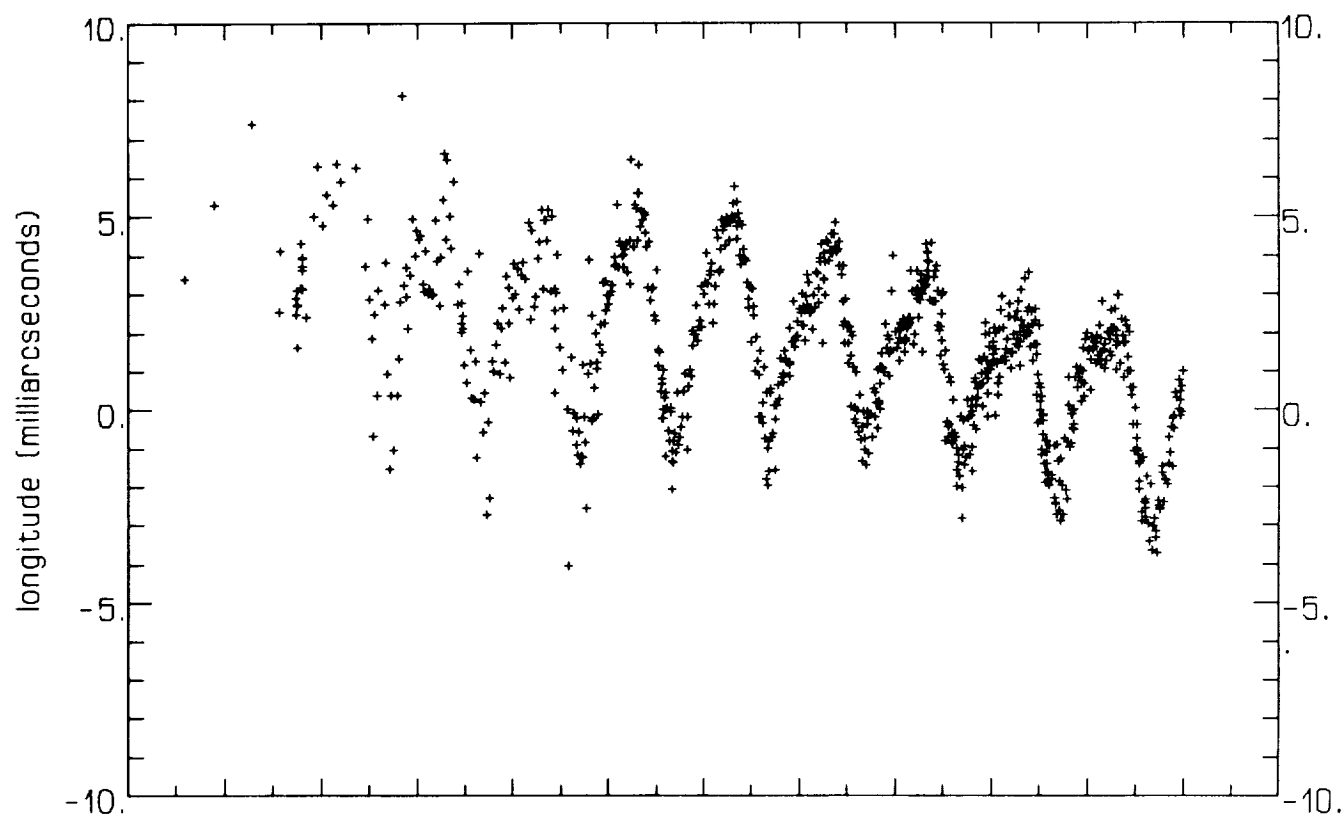
CDP VLBI UT1 - TAI with linear term removed



CDP VLBI Polar Motion



CDP VLBI Nutation Offsets to IAU 1980



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15. Supplementary Notes The contents are available in machine-readable form, on magnetic tape and on floppy disk, from the Crustal Dynamics Data Information Service (CDDIS). D.S. Caprette: ST Systems Corporation, Lanham, Maryland. C. Ma and J.W. Ryan: NASA/GSFC, Greenbelt, Maryland.			
16. Abstract The Goddard VLBI group reports the results of analyzing 1073 Mark III data sets acquired from fixed and mobile observing sites through the end of 1989 and available to the Crustal Dynamics Project. Two large solutions, GLB656 and GLB657, were used to establish a VLBI reference frame with an origin coincident with the ITRF89. Another large solution, GLB658, was used to obtain Earth rotation parameters, nutation offsets, and global source positions. Site velocities were obtained from another large solution, GLB659. A fifth large solution, GLB660, was used to obtain baseline evolution. Site positions are tabulated on a yearly basis from 1979 through 1992. Site velocities are presented in both Cartesian and topocentric coordinates. The results include 76 sources, 80 sites, and 422 baselines.			
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